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Technology in the Massachusetts Classroom

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A Summary of Chapter 188 Educational Technology Grants

1987-1988

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883/108

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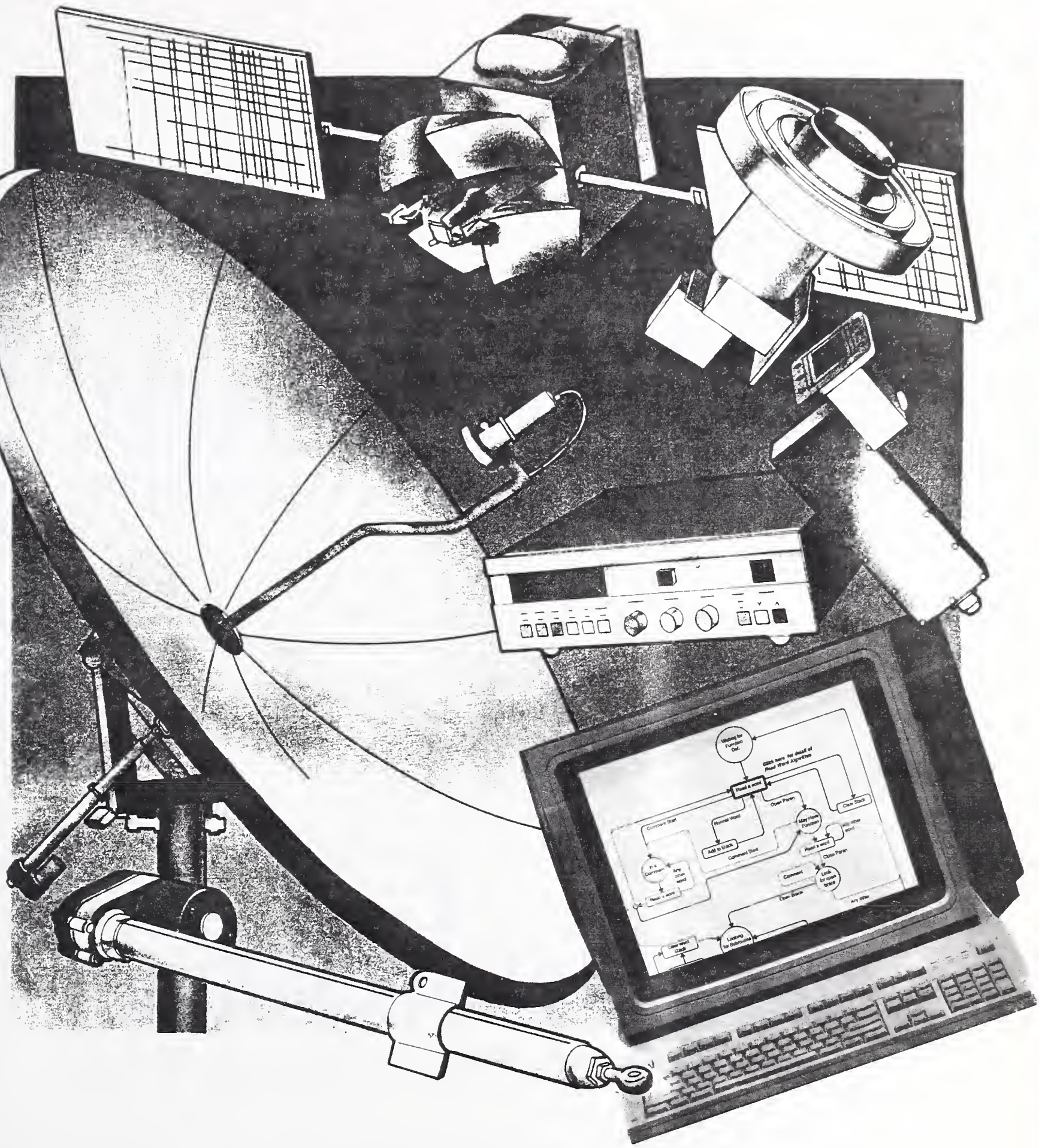
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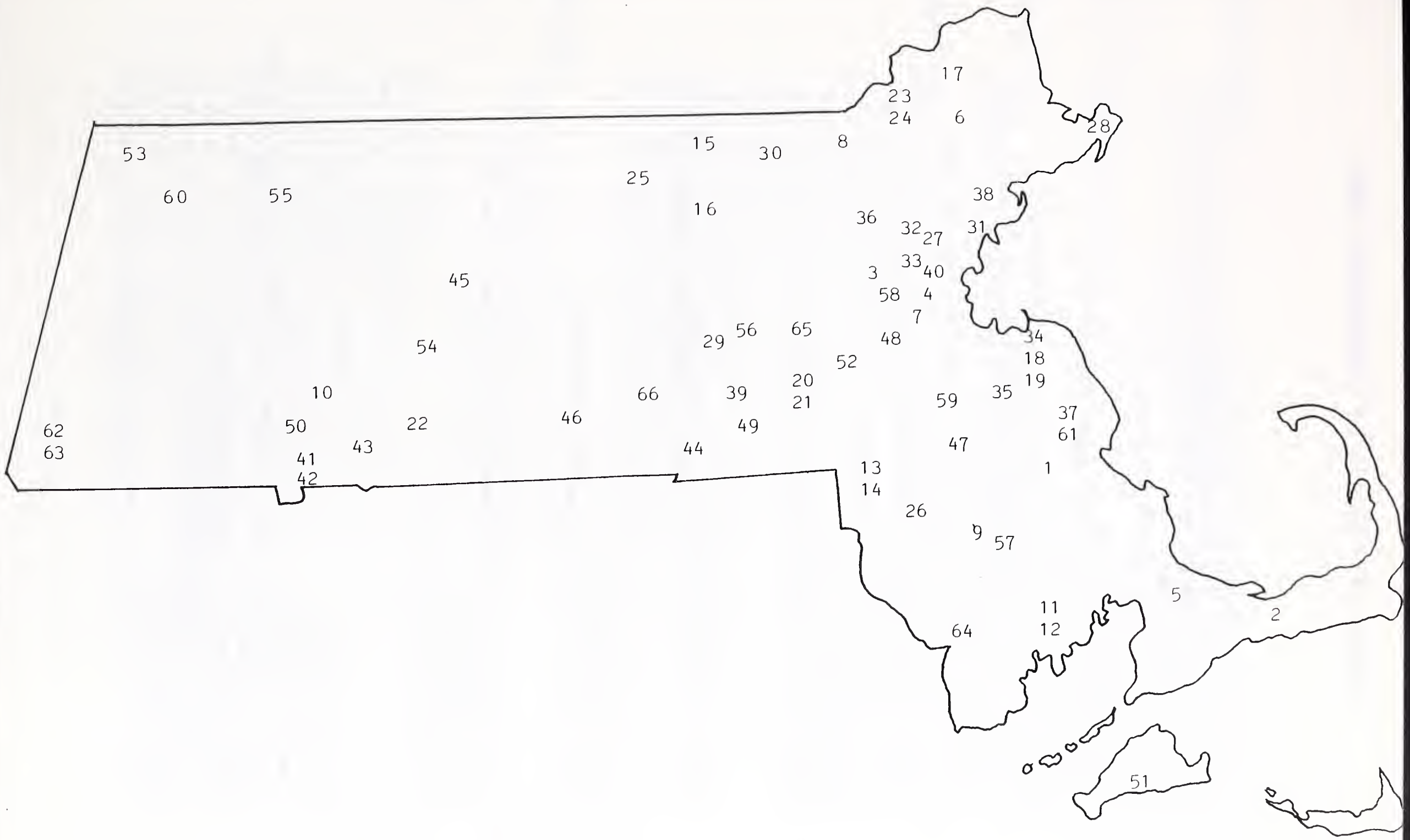
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The Computer as a Classroom Aid in Science
Abington

Curriculum areas:
All.

Grade levels:
7 through 12.

Equipment:
26-inch color monitor, dot matrix printer, 15 TRS-80 computers, 1 Apple computer, audiovisual cart.

Materials:
Earth science series, miscellaneous applications software, cables, notebooks.

Personnel:
Project director and a consultant.

Description:
Three full-day workshops were held with release time for science teachers and interested staff members. Workshops consisted of instruction in the use of the TRS-80, application programs, and teacher use of these programs for individual projects. Included in the workshop was a demonstration of how an Apple computer, together with a large screen monitor, could be used as a teaching aid. Teachers investigated specific software programs for use in their classrooms and prepared sample lessons.

Objectives:
1. To enable teachers to use specific hardware/software configurations and plan curriculum-related lessons.
2. To enable teachers to assess the impact of the project on students' learning.

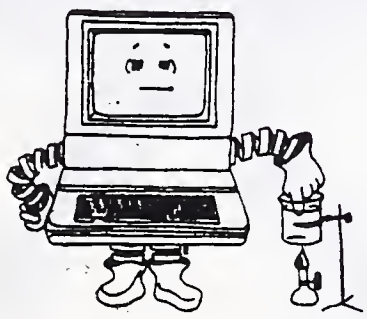
Procedures:
Although this project did not involve students directly, they will benefit from the increased teacher use of the technology to convey abstract concepts and difficult conceptual models.

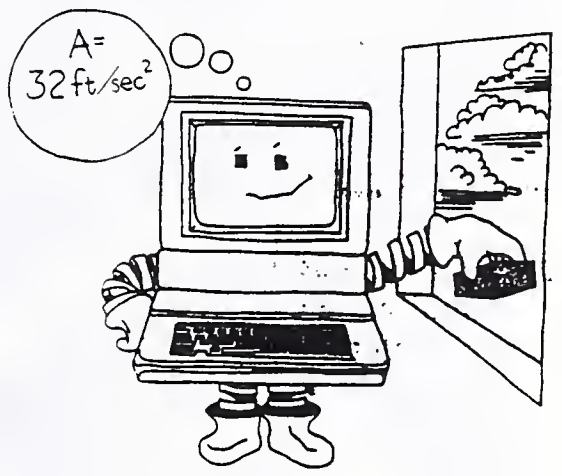
Recommendations:
The project can easily be adapted to include any group of teachers. To be effective, the project requires that teachers have access to a computer and a printer throughout the workshop. The amount of time allotted for the workshop is also important; a five-day program offered at the end of the summer would probably be best.

Materials available:
TRS-80 operating instructions (for loan)

Grant type:
FY87 Mini grant.

Contact:
Mr. Joseph Potoczak
Frolio School Building
Washington Street
Abington, MA 02351
(617)871-0444





Computer-Based Mini-Environments
Barnstable

Curriculum areas:
Earth science, marine biology, ecology.

Grade levels:
7 and 8.

Equipment:
Apple computers, saltwater aquarium, probes.

Materials:
Marine animals, collection equipment, Appleworks software, probe-based software.

Personnel:
Consultants from the Lloyd Center for Environmental Research.

Description:
Computer-monitored aquarium tanks were set up in each science teacher's classroom. These mini-environments duplicate different ecosystems such as a salt marsh, estuary, deep ocean, or other ecosystems found both on and off Cape Cod. Working with the mini-environments, students monitor variables such as temperature, salinity, pH, and oxygen in order to better understand the impact that these variables have on their environments.

Objectives:
1. To enable teachers to utilize the mini-environment as an instructional tool.
2. To enable students to describe how the mini-environments function in order to maintain specific ecosystems.
3. To enable students to describe how technology can be used to aid scientific investigation.
4. To enable students to use the mini-environments as vehicles for comparisons.
5. To enable students to predict the impact of significant factors on the Cape Cod environment.

Recommendations:
We hope that our project can serve as a model for other schools to replicate.

Materials available:
Instructional activities involving mini-environments for regular classroom use.

Grant type:
FY87 Project grant.

Contact:
Rick Bidgood
Barnstable Middle School
895 Falmouth Road
Hyannis, MA 02601
(617) 771-4600

Conflict Resolution:
An Interschool Network to Train Tomorrow's Leaders
Bedford

Curriculum areas:
Gifted and talented program, life skills, computer education, social studies.

Grade levels:
5 through 8.

Equipment:
Apple IIe computers.

Materials:
The Other Side software, other computer simulation software.

Personnel:
Gifted and talented teacher, computer specialist, special education teacher.

Description:
This project involved using simulations with elementary school students for the purpose of developing leadership, negotiation, and group process skils. The students involved were from the gifted and talented program and from special needs classes.

Objectives:
1. To develop and enhance the leadership, negotiation, and group process skills of the students involved.
2. To increase students' experience with computer applications.

Procedures:
Working with three separate groups (two elementary gifted and talented groups and one middle school special needs group), we introduced simulations both on and off the computer. We provided instruction and projects in group process, leadership skills, and problem solving. The final eight weeks were spent applying and further developing these skills, along with negotiation skills, while playing The Other Side in various configurations of groups.

Recommendations:
All students involved were highly motivated by this project. On several occasions they voluntarily stayed after school to complete The Other Side games. The concept of 'playing' with groups located in other buildings was particularly intriguing and added to the motivation.

This program is flexible both in terms of application (grade 5 and up) and equipment needed. It could easily be used by one teacher in one classroom with one computer. The networking ability adds a further dimension but it is not required. It provides an effective, motivating way to present life skills training that is otherwise difficult to provide within the basic curriculum.

Materials available:
Videotapes of classroom activities (these were produced mainly to help our school personnel observe and evaluate the activities).

Grant type:
FY87 Project grant.

Contact:
Cathy Cordes/Jane Franklin
Davis Elementary School
Davis Road
Bedford, MA 01730
(617) 275-6804

TEACHNET
Boston

Curriculum areas:
Mathematics.

Grade levels:
3 through 5.

Equipment:
Telephone lines, modems, networking hardware, 15 computers.

Materials:
IBM Basic Sklills Math Series Level II software, telecommunications software.

Personnel:
Teachers (with 8 hours of training).

Description:
Project TEACHNET was designed to:
1. increase student achievement and improve remediation efforts in elementary math instruction.
2. improve instructional delivery and management through the use of local area network (LAN) technology, and
3. improve communication among teachers, administration and central office staff through a telecommunication network.

Each of the five schools was equipped with software and telecommunications capabilities to use in the computer labs. The math software was used for student instruction. Teachers developed a telecommunications network in order to exchange ideas.

Objectives:
1. To improve basic math skills in the intermediate grades.
2. To use telecommunications as a communication system among teachers and administrators.
3. To assist teachers in learning new techniques for mathematics instruction.
4. To use the capabilities of the local area network (LAN) and keep student records.

Procedures:
Teachers received training on the IBM basic skills software, telecommunications and LAN. They targeted specific software activities to use in their classrooms with students. The students worked on targeted math skills with the software activities. Teachers then participated in teacher-sharing sessions that included exchanges of lesson plans and teaching strategies.

Recommendations:
Teachers identified the strengths of this project as curriculum-based software, in-depth training and the opportunity to exchange information with colleagues. The close targeting of software to classroom objectives made it possible for teachers to explore the use of new technology in their classrooms.

Significant time is required for training, learning the software, experimenting with the technology, and implementing projects. Since networking is a new instructional tool for both educators and the computer industry, extra time and technical expertise are required to establish local area networks.

Materials available:
A project evaluation document.

Grant type:
FY87 Project grant.

Contact:
Marilyn Gardner
The Humphrey Center
75 New Dudley Street
Boston, MA 02119
(617) 442-5200 x571

Technologies Application Planning Process
Bourne (Cape Cod Consortium)

Curriculum areas:
All.

Grade levels:
2 through 12.

Materials:
Computer Applications Guidebook, Computer Applications Planning Seminar (CAPS) Manual.

Personnel:
Consultants from the Merrimack Education Center.

Description:
Four people in each of eight school districts were trained to serve as planners for integrating instructional technology into the schools' existing curricula. The project promoted the development of model procedures and programs that revitalize the curriculum and help students and teachers become more effective.

Objectives:
1. To establish a district-wide computer planning process for each of eight towns.
2. To prepare a plan for integrating technology into the existing curriculum.
3. To develop a long-range plan that prepares staff to develop and implement the comprehensive technology program.
4. To establish procedures for coordinating the implementation of the computer program.

Procedures:
Each community selected a team of three or four planners. Each planning team then participated in four training sessions. Consultants from the Merrimack Education Center (MEC) visited each community and reviewed the plan that had been developed. Throughout the project MEC provided technical assistance to each community as it developed its plan.

Materials available:
Written plans for integrating technology into the curriculum.

Grant type:
FY87 Mini grant.

Contact:
Dr. Richard Warren
c/o Bourne Public Schools
36 Sandwich Road
Bourne, MA 02532
(617) 759-5112

An Action Plan to Integrate Computers into the Regular Curriculum
Boxford

Curriculum areas:
Language arts, science, social studies.

Grade levels:
3 through 6.

Equipment:
Apple IIc and Apple IIe computers.

Materials:
Software for language arts, science, and social studies.

Personnel:
Consultant for needs assessment and training.

Description:
The project consists of three components: a needs assessment, an action plan, and the development of specific units of instruction for grades 3 through 6. The needs assessment involved teachers, parents, students, facilities, equipment, and software.

The action plan addresses the identified needs through a planned sequence of activities to be conducted during the 1987-88 and 1988-89 school years. The instructional development component of the project included a three-day workshop. Following the workshop, selected teachers developed model units of instruction in language arts, science, and social studies.

Objectives:
1. To conduct a comprehensive needs assessment that will provide important information to plan new program directions for the next two years.
2. To provide teachers with opportunities to visit model demonstration programs that use computers.
3. To train teachers in the areas identified as priorities in the needs assessment.
4. To develop model curriculum units for implementation in September 1988.

Procedures:
The project began with the identification of a consultant for the needs assessment and training design. Teachers, parents, and students were involved in the needs assessment.

Next, teachers engaged in a number of site visits to model programs in other districts. They used the knowledge gained from these visits with their classes. During this time software was being reviewed in various classrooms for possible use in curriculum units. Students were very involved in rating software selections. Finally, teacher training and curriculum development took place.

Recommendations:
The program clearly has value in helping a building faculty identify and develop a comprehensive, well-articulated approach to the use of computer hardware and software in a classroom setting. The process of linking existing curricula to specific computer applications has helped teachers realize their goal of integrating curricula. The optimum time period for conducting a project such as this is one year.

Materials available:
Needs assessment instruments, action plan for 1987-1989, curriculum units in language arts, science and social studies that link available software to units of study in grades 3 through 6.

Grant type:
FY87 Mini grant.

Contact:
Bernie Creeden
Spofford Pond School
Spofford Road
Boxford, MA 01921
(617) 352-8616

Skill Improvement Through Database Retrieval Services
Cambridge

Curriculum Areas:
All.

Grade level:
7-9.

Equipment:
CD-Rom players, modems, IBM PC and printers.

Materials:
Groliers Electronic Encyclopedia, Communication Software, filmstrips, on-line data base retrieval services, disks, paper, etc.

Personnel:
Consultant for training, coordinator of project.

Description:
The intent of the project is to provide the library media specialists and 7, 8, and 9th grade teachers at four sites the opportunity to familiarize themselves with the use of microcomputers to access information through on-line database retrieval services such as Compu-Serve and Dialog as well as the use of a CD-Rom player which utilizes Groliers Electronic Encyclopedia. The teachers will integrate the use of this technology into their research and writing curriculum. The information acquired will be integrated into their general curriculum which willo improve the quality and expand the scope of their classroom lessons and activities. The teachers will be supported in their efforts by the library media specialist at each location. In a collaborative approach the team will integrate library research skills into the curriculum in an effective manner as it relates to the area being studied.

Objectives:
1. To familiarize selected 7, 8, and 9th grade teachers and students in the use of computerized on-line database retrieval services.
2. To assist 7, 8, and 9th grade teachers to develop classroom lessons which integrate the use of technology into existing research and writing efforts.
3. To assist secondary teachers in using the information to enhance their daily classroom activities.
4. To create a core group of resource people to support the integration of the on-line database retrieval services into the classroom.

Procedures:
After purchasing the appropriate hardware and software necessary to simulate on-line searches, orientation and training in the use of the services was provided. Participating teachers use services to support curriculum development and lessons and conduct classes for students on services and using CD-Rom player. Teachers were then able to create schedules for student usage and students use services in response to classroom lessons and activities and curriculum units integrating the services.

Recommendations:
The strengths are to access informational services that are not readily available in most libraries; exposure to the use of new technologies; strengthening of research skills that will assist students in basic skills and future academic needs that will arise at the secondary level; and enhancement of the delivery of curriculum objectives for a variety of areas.
The weaknesses were the time and expertise needed to set up and instruct teachers on the use of such a system; numerous problems have developed concerning hardware and software issues; and the time necessary to bring about full implementation was longer than expected.

Materials available:
At this time we can supply information about ordering, specialists in the field, hardware issues, telecommunication concerns and issues surrounding telephone lines.

Grant type:
FY88 Project grant.

Contact:
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Cambridge School Department
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Cambridge, MA 02174
498-9200

Reading Data Network
Dracut

Curriculum levels:
All.

Grade levels:
3 through 6.

Equipment:
Apple IIe computers, Sytek RF modems, Digital PDP 11/44 mini-computer, existing cable TV system.

Materials:
Communications software similar to Apple Access II, word processing software, Basic Reading Text Series, Critical Thinking Skills materials.

Personnel:
Teachers.

Description:
This year-long project served 8 classes of third through sixth grade students. It resulted in the formulation of a curriculum component emphasizing the development of Critical Thinking Skills in Reading. After teachers were trained, they began developing a Data Network which served to link Apple computers at four elementary schools with a Digital PDP 11/44 mini-computer at the high school. The existing cable television lines served as the transmission medium. Teachers developed test items correlated to Basic Reading Texts and input these items into a database available to all elementary teachers for use in their classrooms.

Objectives:
1. To analysze existing equipment to determine the suitability for use in the project.
2. To identify and train Reading Team Developers who indicated a high interest in integrating Critical Thinking Skills in the Elementary Reading Program.
3. To develop a Critical Thinking Skills Curriculum Component by Reading Team Developers to be infused into the Reading Curriculum.
4. To pilot test and evaluate newly developed Curriculum Component during regularly scheduled Reading classes.

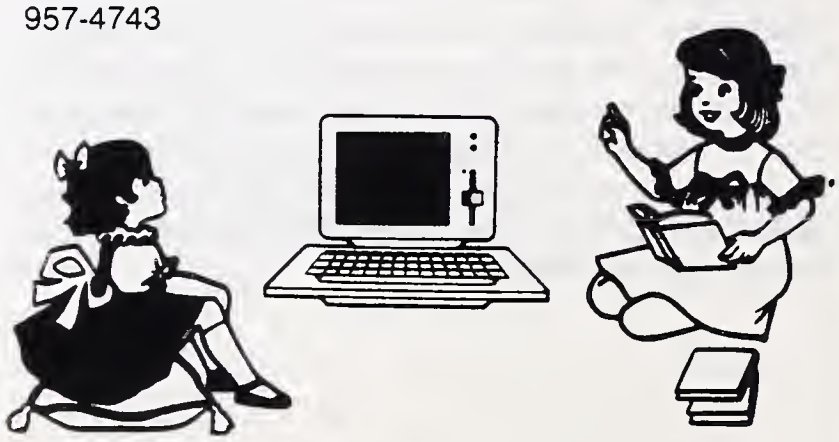
Procedure:
Reading Team Developers met with an Educational Consultant for the purpose of receiving extensive training in developing higher level thinking skills test items for elementary reading texts. Teachers administered a pre-test (Modified Ross) to all students involved in the project and provided an on-going emphasis on enhancing student skills in answering higher level test questions. The database of test questions were made available to all teachers in all buildings by the implementation of the Data Network phase of the project. Cumbersome entry and data retrieval procedures were streamlined to allow for easier access to the network by the teachers.

Recommendations:
This project will work with any curricular area in which district-wide use of a textbook series prevails. Cable plant must have a separate institutional system (as opposed to a subscriber only system). Many other subprojects can result from the availability of this system. Among these are Electronic Mail between buildings for better communications or the establishment of a Teacher Sharing Network.

Materials available:
We have created a database of higher level thinking skills test items for widely used Ginn and Houghton-Mifflin readers (grades 3 - 6). All major stories within each series were selected. Compilation still in process. Available in Spring 1988.

Grant type:
FY88 Project grant.

Contact:
Michael F. McNamara
Dracut Public Schools
Office of the Superintendent
2063 Lake Avenue
Dracut, MA 01826
957-4743



Career Preparation
East Freetown-Lakeville

Curriculum areas:
Business.

Grade levels:
9 through 12.

Equipment:
Apple computer.

Materials:
Software, catalogs.

Personnel:
Special needs teachers.

Description:
Career Preparation is a business education program that targets special needs students who are mainstreamed into regular business courses. Students will utilize tutorial software that will reinforce typing, word processing and other business related skills. The goal of the program is to increase the job readiness skills of a special population as they relate to business education.

Objectives:
1. To increase participation in business education by special needs students.
2. To offer custom designed courses for this population.
3. To increase the motivation of this target population.

Procedures:
Input was solicited from several schools concerning the success/failure rate of special needs students who were mainstreamed into regular business courses. The data was reviewed and the need for a new business course with a lower pupil:teacher ratio and tutorial assistance is indicated.

Recommendations:
The planning committee proposes the addition of a lower level typing class for the Fall of 1988. The cooperation among staff and department heads has been an asset to the planning staff to date and should continue through the implementation phase.

Grant type:
FY88 Mini grant.

Contact:
Mario Maura
Apponequet Regional High School
43 Bullock Road
East Freetown, MA
763-5905

Easthampton Telecommunication Program
Easthampton

Curriculum areas:
All.

Grade levels:
K through 12.

Equipment:
Television equipment.

Materials:
Television programs.

Personnel:
4 Consultants.

Description:
A thirty-hour course was offered to all professional staff members in the Easthampton Public School System. This course taught television production and post-production. It also enabled staff to integrate television technology into their present curricula. During the course teachers created and produced television programs, which will be cablecast on the cable television's local access channel.

Objectives:
1. To enable the school staff to integrate television technology into the curriculum.
2. To produce programs that will demonstrate the quality of the town's public school system.

Procedures:
A television production class was offered to all professional staff in the school district (30 hours - 10 weeks). Four staff members produced television programs. Ten staff members produced curriculum-specific video products.
Five staff members were trained in the specifics of instructional television integration.

Recommendations:
Through this project we produced quality television programs for the students and community members to view. The project's strength was its ability to use the talents of various teachers in all subject areas to produce this programming. Schools that are considering similar projects should be aware that this kind of project requires a considerable amount of time.

Materials available:
Four video programs (about 1.5 hours).

Grant type:

FY87 Mini grant.

Contact:
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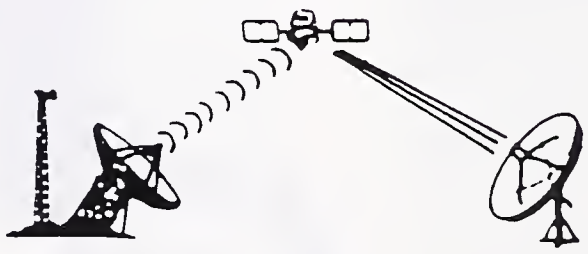

Project MARSH
Fairhaven

Curriculum areas:
Science.

Grade levels:
K through 5.

Equipment:
Videocassette recorder, camera, monitor.

Materials:
Database software and Voyage of the Mimi software.

Personnel:
Consultants from the Lloyd Center for Environmental Research and an instructor.

Description:
Project Marsh added videotaping and database capabilities to a successful School Improvement Council project. The project also provided consultant and instructional services for the purpose of continuing and refining teaching units.

Objectives:
1. To develop teaching activities and materials for grades K-5.
2. To develop a database on the marine specimens that students collected and identified.
3. To enable students to acquire map-reading skills by using Voyage of the Mimi software.

Procedures:
Costs and project objectives were negotiated with consultants from the Lloyd Center. Instructional materials and lesson plans involving field experiences in local marsh and estuarine environments were developed. Computer sessions, lessons, field experiences and databases were planned and implemented.
8. Evaluate the project.

Recommendations:
While this program focuses on a marine and estuarine environment, the concepts and approaches involved could be adapted to any study of ecosystem food webs and environments.

Materials available:
Units on marine and related seashore habitats (available on limited basis).

Grant type:
FY87 Mini grant.

Contact:
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LeRoy L. Wood School
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Weather or Not
Fairhaven

Curriculum areas:
Language arts, science, math.

Grade levels:
K-5.

Equipment:

Weather instruments, Camcorder.

Materials:
Forecasting and Tutorial Software and materials for construction of weather maps.

Personnel:
Consultant services.

Description:
This program utilizes technology to improve the elementary science program especially as it relates to the study of meteorology. The program has equipped each school with a state of the art weather station, appropriate educational software for generating daily forecasts and consultant services. Additional tutorial software has been purchased. The consultant will be used for teacher in-service and to provide in-class enrichment.
A video camcorder is used to record local weather phenomena and to record interviews with local citizens who work in weather sensitive occupations. A process oriented approach to instruction and activities is emphasized.

Objectives:
1. To utilize weather instrumentation and computer software, in the study of meteorology.
2. To demonstrate students' ability to read weather instruments and to interpret data.
3. To enrich the teacher and student experience in the elementary science program as it relates to the study of meteorology.

Procedure:
Several types of weather stations and camcorders were investigated before a final purchase was made. Pupil construction of national and New England weather maps were coordinated with the instruction of pupils in the software application and weather station use.

Materials available:
We intend to produce a videotape of local weather phenomena.

Grant type:
FY88 Mini grant.

Contact:
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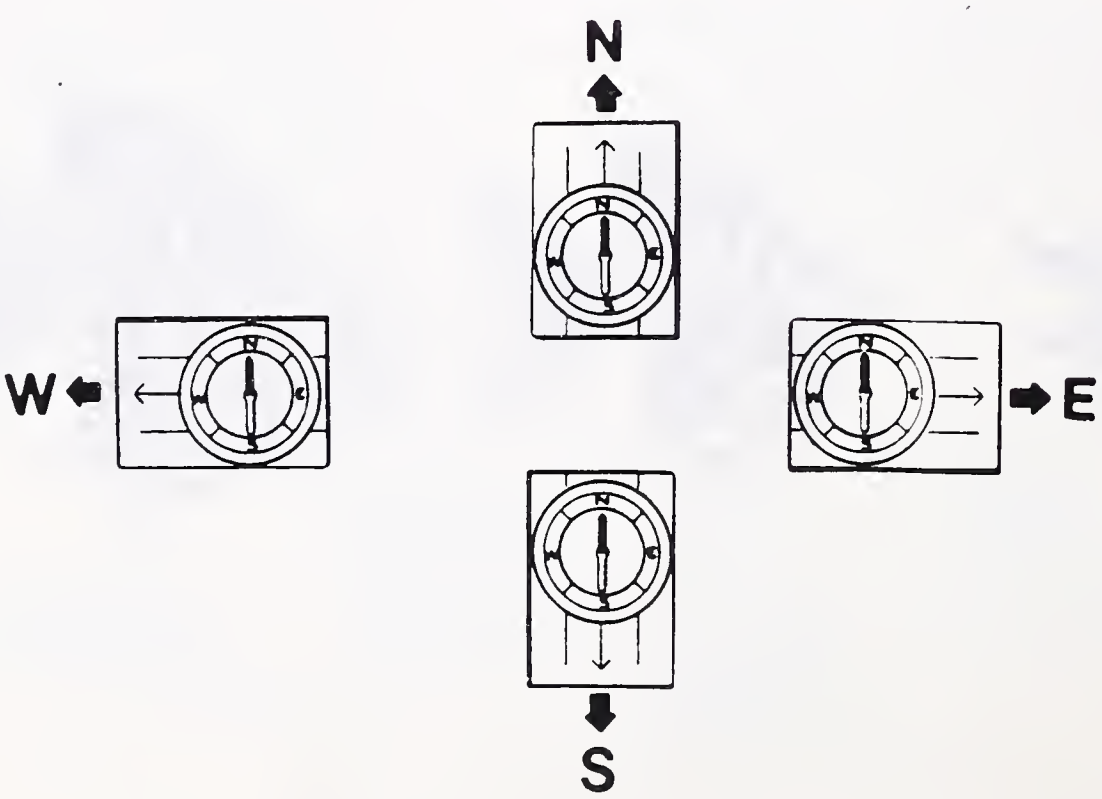
997-2971



Easy Writer
Foxboro

Curriculum areas:
English, writing.

Grade levels:
7 and 8.

Equipment:
3 Apple IIe color classroom systems.

Materials:
Software to be purchased.

Personnel:
Consultant, two special educators, 4 classroom teachers.

Description:
This is a planning program to use computer technology as a viable avenue for language remediation. The existing English curriculum for students in grades 7 and 8 require basic proficiency in paragraph development and report writing. Initial instruction supported by computer skill practice will produce acceptable written language. Project teachers are defining responsibilities and needs for Easy Writer's implementation during the 1988-89 school year.

Objectives:
1. To expand present teaching strategies relevant to the instruction of writing skills, particularly paragraph development and report writing.
2. To improve student writing skills in the targeted areas.
3. To use computer technology as a viable avenue for language remediation.

Procedure:
Special educators and a consultant reviewed some software with the help of special education students from mainstream English classes. Special educators and consultant then demonstrated how the program can work by teaching 'AppleWorks' to students and using the computer and 'Appleworks' as a tool. Tests were collected and matched to curriculum objectives. English related I.E.P. objectives have been collected on assigned, special needs students. These will be coded to existing curriculum objectives and new objectives will be submitted to Educom for inclusion in programs.

Recommendation:
Handicapped adolescents experience significant failure in written performance. Planning a program that integrates the expertise of special educators, technology and regular curriculum objectives will meet many instructional needs.
The program's effectiveness is limited by the number of computers. The degree of success of the program will be directly proportional to the number of computers available for needy students.

Materials available:
None.

Grant type:
FY88 Mini grant.

Contact:
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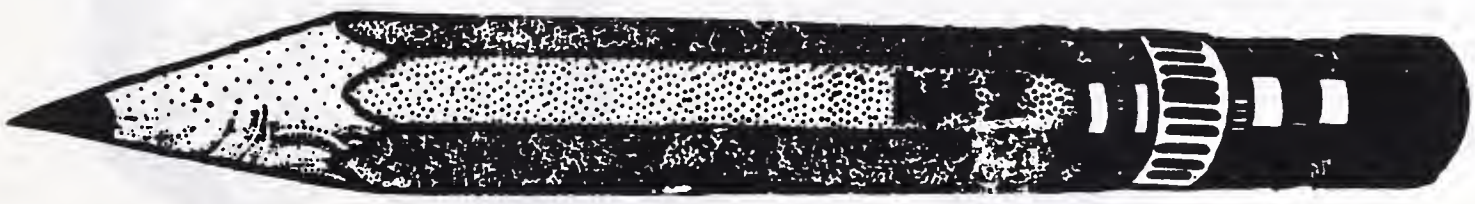

Lab Central
Foxboro

Curriculum areas:
All.

Grade levels:
9 through 12.

Equipment:
8 Apple IIe's, 3 printers, remodeling, connective devices.

Materials:
Curriculum oriented software.

Personnel:
2 workshop consultants, vendor personnel.

Description:
Foxboro High School had a computer facility called 'Lab Central'. This was a laboratory which gave students access to computer hardware and software during their study periods and/or free time. Our project is the extension of the existing laboratory and the development of techniques to integrate its use into existing curricula. Funds for the project were spent in hiring of inservice consultants, paying of teacher workshop stipends, laboratory remodeling, and the purchasing of needed software.

Objectives:
1. To utilize Lab Central as a training center for teacher instruction in word processing, database and spreadsheet software.
2. To train teachers in software evaluation techniques.

Procedures:
Teachers were trained in Appleworks software and shared their new skills with fellow department members. A software evaluation workshop was followed by a software previewing activity with various software representatives. Teachers were then given an amount of money to purchase 'quality' educational software for their department. The software was used in the classroom as students participated in a word processing project in an English class, data base project in a special studies class, and spreadsheet project in a mathematics class.

Recommendations:
This project is an excellent way to initiate, spread, and promote quality computer use in a high school setting. The first outcome of the project is that a larger number of teachers are not comfortable using computers in and out of the classroom. Another outcome is that our school now has a well equipped computer facility where students, who now are more computer literate, have the ability to use these new tools at any time to enhance their productivity during their high school years. Educators can also use this facility for group classroom instruction, and faculty training workshops.

Materials available:
Video tape is being made and will be sent to State Department of Education for distribution.

Grant type:
FY88 Project grant.

Contact:
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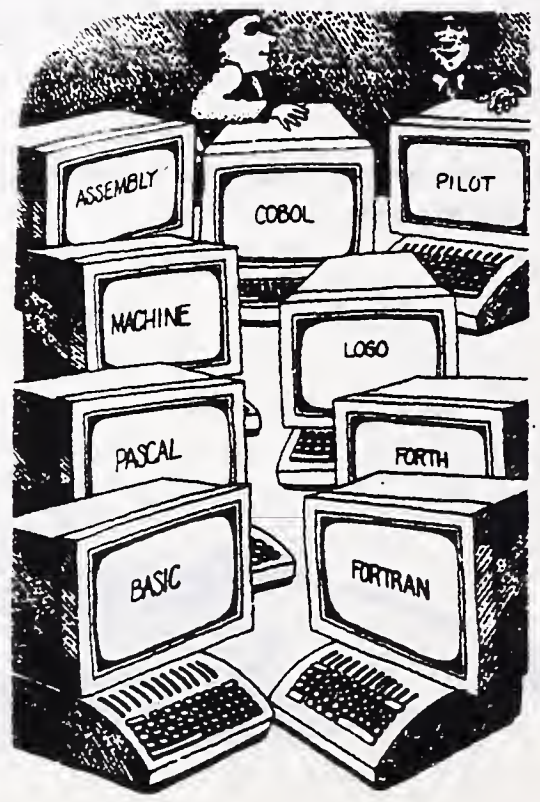
(617) 543-1114



Project CONNECTION
Groton-Dunstable

Curriculum areas:
All.

Grade levels:
9 through 12.

Equipment:
2 Apple IIe computers and printers.

Materials:
Subscription to Dialog, software, modem, on-line usage.

Personnel:
Computer aide, librarian.

Description:
This project will provide students with on-line computer research skills to access a broader data base. Similarly, teachers will be trained in the skills of telecommunication to access a greater database in their content area as well as alternative teaching strategies and curriculum materials.

Objectives:
1. To promote the use of a broader database in research projects in English and Social Studies.
2. To increase database used by teachers in their curriculum areas.
3. To improve the reference skills of students.
4. To improve the quality of student research papers.
5. To increase student interest in research.
6. To introduce teachers to a variety of strategies and materials.
7. To increase teacher knowledge in their content areas.

Procedures:
Teachers, aides and department heads must first be trained in telecommunication skills via a series of in-service workshops. Once trained, the computer lab is set up by teachers for on-line researching. Teachers are now ready to teach the necessary skills for on-line searching.

Recommendations:
Students and teachers are very enthusiastic about researching in this manner. Teachers are now communicating departmentally.
One weakness was the great deal of time needed for teachers to learn these skills.

Grant type:
FY88 Project grant.

Contact:
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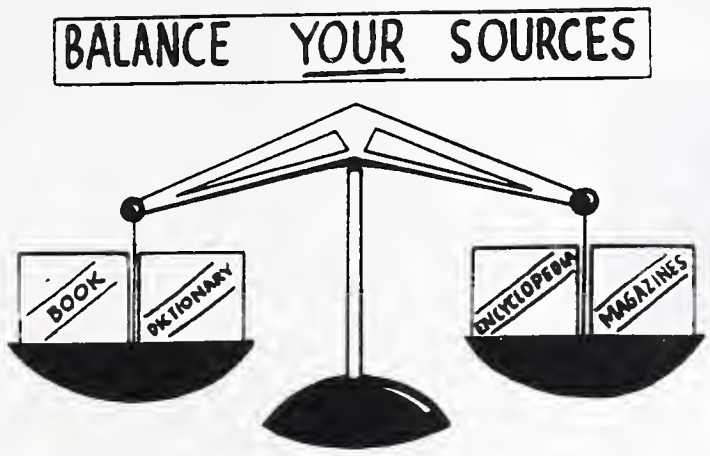
Groton, MA 01450
(617) 448-5505



Videodisc Technology
Harvard

Curriculum areas:
Science, art, library skills.

Grade levels:
7 through 12.

Equipment:
Pioneer videodisc player, color monitor, keyboard controller, laser talk system.

Materials:
Frames of reference.

Personnel:
Science teachers, librarian.

Description:
Videodisc Technology integrates visual materials in the areas of art, library skills, and science by reinforcing concepts introduced to students in the classroom. As an example, the software selected for life science/biology will find uses in seventh grade life science to demonstrate cell types and structures not routinely available via existing methods.

Objectives:
1. To train teachers in the use of new technology, specifically the videodisc player.
2. To increase teacher awareness of new software available on videodisc.
3. To motivate teachers to use these materials in their classrooms.

Procedures:
Teachers will be introduced to the new equipment through training sessions. They will also be made aware of the software available in their subject area. After initial implementation, teachers will be able to utilize materials that are now available on videodisc.

Recommendations:
Since discs are a relatively new form of technology, the number of materials available is not significant. However, as more information becomes available in disc format, the collection will be able to grow.

Materials available:
Availability of software is through National Gallery of Art or Carolina Biological Supply. All materials are commercially produced.

Grant type:
FY88 Mini grant.

Contact:
Linda Preissel
The Bromfield School
P.O. Box 273
Harvard, MA 01451
456-3233

CONNECTION: Primary Classrooms and Computers
Haverhill

Curriculum areas:
All.

Grade levels:
K-4.

Equipment:
Word processor, printer, Xerox machine.

Personnel:
Committee (8-10) to meet two weeks during summer and follow one month during remainder of year.

Description:
The purpose was to develop a comprehensive plan for the infusion of computer education in the primary school curricula. After selection process, the committee, representing all primary schools, met for two weeks to develop a plan based on information from prior research. During the school year, after the plan was adopted by the School Committee, the Planning Committee continued to function as a steering committee and as liaison between buildings and administration. Further, the committee began a process for the review and selection of software.

Objectives:
1. To develop and submit a comprehensive plan relative to computer education in the primary school curricula.
2. To identify resource staff within each of the primary schools for the purpose of promoting further development.

Procedures:
A needs assessment survey of parents, teachers, and administrators was conducted. Inventory of current computer competencies (staff) was taken. A committee was selected through application and interview process. The committee convenes in July for two weeks to construct a plan. The plan is reviewed by teachers, parents, administrators, and the school committee for acceptance and implementation.

Recommendations:
The concentrated time built concensus among c t-tee members. Representation from all schools d communication and eliminated a major obstacle ceptance. The only weakness was that expecta were set so high that they were not possible to ach in timeframe planned by committee.

Materials available:
The following document may be purchased for duplication cost only:
'Primary Schools Computer Implementation Plan for the Haverhill Public Schools'.

Grant type:
FY88 Planning mini grant.

Contact:
Dr. Richard Silverman
Haverhill Public Schools
4 Summer Street
Haverhill, MA 01830
(617) 374-3452

Hingham Origins
Hingham

Curriculum areas:
Social studies.

Grade levels:
5.

Equipment:
Apple IIe (128K dual disk).

Materials:
Appleworks, teacher packets.

Personnel:
Teachers with some computer experience.

Description:
Game/simulation using the computer to motivate and reinforce local history unit.

Objectives:
1. To introduce a computer based activity for a local history unit for grades 5 and 8.
2. To train classroom teaching staff in the use of software simulation.

Recommendations:
Since the content is local (Hingham) history, the project can be used as a model for other similar efforts but not as an intact teaching unit.

Materials available:
Computer program, game simulation, student packet of historical notes, teacher packet of instructional materials, suggestions for complementing local history unit.

Grant type:
FY88 Mini grant.

Contact:
Dorothy Galo
Dan LeClerc
Hingham High School
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Hingham, MA
(617) 749-5320

Project WRITE
Hingham

Curriculum areas:
Language arts, writing, humanities.

Grade levels:
5 and 6.

Equipment:
Apple IIe computers with double-disk drives, printers.

Materials:
AppleWorks software, PAWS software, language arts curriculum.

Personnel:
Workshop consultants.

Description:
Teachers received instruction in using a word processor with students. They then developed activity packets integrating the computer into the language arts curriculum.

Objectives:
1. To train staff in the use of AppleWorks and PAWS software.
2. To develop writing activities for grades 5 and 6.
3. To purchase hardware and software for student word processing.

Procedures:
Teacher workshops were held in February and March, 1987, to develop curriculum materials. Throughout this entire period, students were instructed in computer use and piloted the curriculum materials.

Recommendations:
The program has functioned well, although after four months, a few teachers still lacked the confidence to fully implement it. Most teachers would have liked more 'hands-on' workshop time to build their mastery of word processing skills.

Materials available:
Teacher guides and student activities for writing experiences in grades 5 and 6 (these materials support our own, rather than commercially available, language arts curriculum).

Grant type:
FY87 Mini grant.

Contact:
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Hingham, MA 02043
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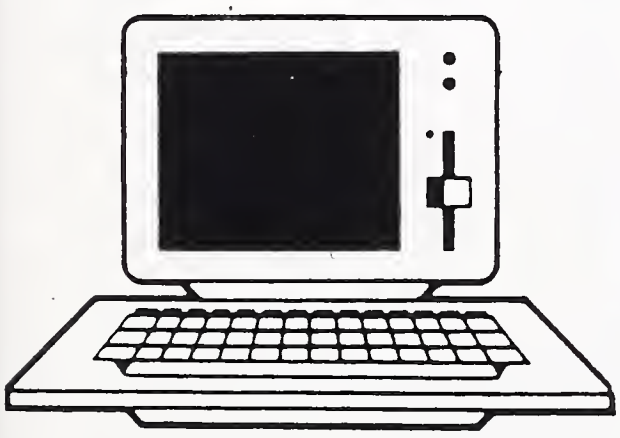

The Process of 'Re-visioning' for the Marginal Writer

Holliston

Curriculum areas:
Writing.

Grade levels:
2, 3, and 9.

Equipment:
Apple IIe, printers, peripherals.

Materials:
AppleWorks.

Personnel:
English teacher.

Description:
This project helps those students on the fringes of the school's writing groups to actually write. Using a word processor can free these marginal writers from the sense of failure, and provide them with a measure of success as they learn to revise and edit and to share their finished product.

Objectives:
1. To train teachers in the use of technology in the writing process.
2. To develop a writing curriculum and instructional units incorporating technology.
3. To enable students who are marginal writers to improve their writing skills using a word processor.

Procedures:
Staff was first introduced to this project through in-service training. Input was solicited to establish a strategic means of introducing the technology into the various classrooms of the target population. Appropriate lesson plans were developed which will allow students to become aware of the relationship between technology and the writing process.

Recommendations:
In-service training is a vital part of the implementation of technology. Once teachers overcome the first hurdle, there is no limit to the use of technology.

Materials available:
Appleworks software package modified for the writing project.

Grant type:
FY88 Project grant.

Contact:
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Hollis Street
Holliston, MA
429-5060

Early Childhood Technology Evaluation Grant
Holliston

Curriculum areas:
Reading, language.

Grade levels:
Pre-K through 1.

Equipment:
IBM computers.

Materials:
Writing to Read software.

Personnel:
Evaluator.

Description:
This project involved evaluating computer-assisted instruction in ten kindergarten classrooms and three preschool classrooms. The programs evaluated were a computer reading program and ancillary modality instruction. Our long-range goal is to implement and adapt a model of computerized instruction based on the data gathered.

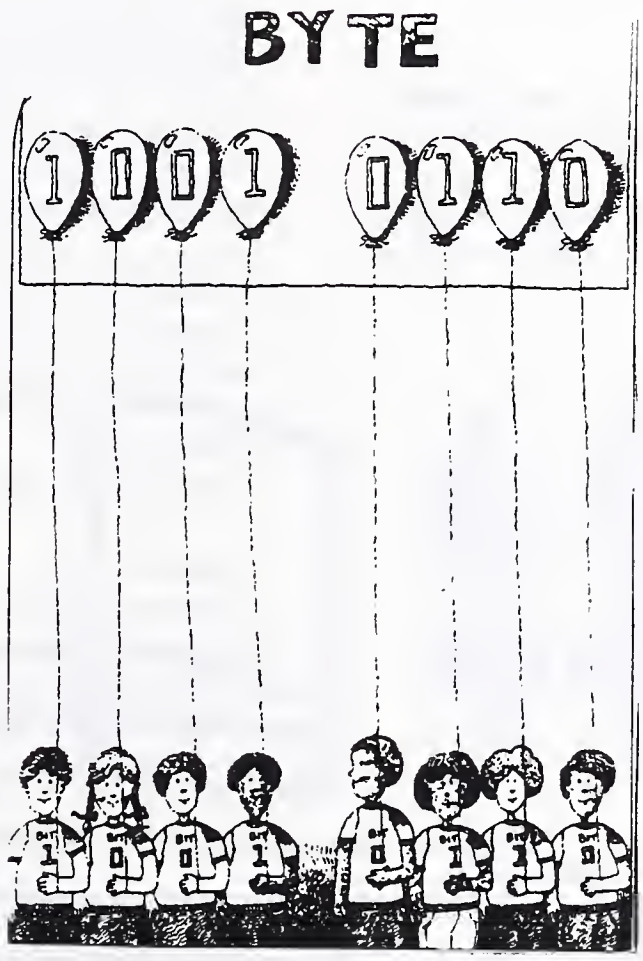
Objectives:
1. To evaluate the hypothesis that the computer-assisted program supports growth in language, reading, and fine motor skills at a significant level.

Procedures:
Over a two-year period, all students in grades Pre-K and K were administered a battery of pre- and post-tests. Three standardized measures were used.

Materials available:
An evaluation report.

Grant type:
FY87 Mini grant.

Contact:
Dr. Margaret Reed
Holliston SPED Office
Linden Street
Holliston, MA 01746



Supposing in Geometry and Algebra
Holyoke

Curriculum areas:
Mathematics.

Grade levels:
9 through 11.

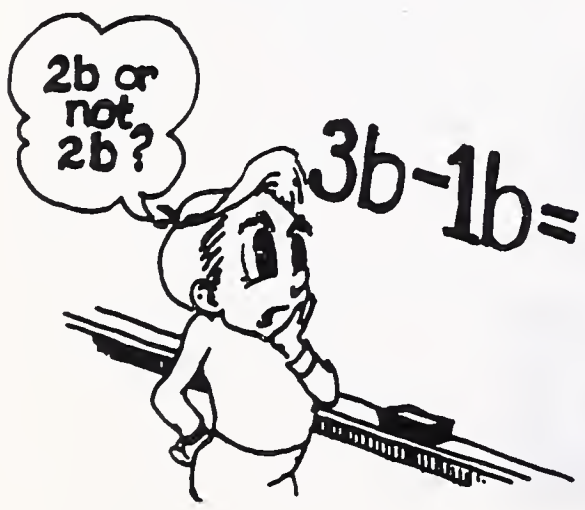
Equipment:
Apple IIe computer and Apple IIc computers, video projector.

Materials:
Geometric Supposer software, Compucalc software.

Personnel:
8 Instructors

Description:
Supposing in Geometry and Algebra represents the third year of a three-year plan for the redesign of secondary mathematics instruction in Holyoke. Teachers, parents and administrators recognized that for many students, especially minorities, standard textbook-lecture-workbook strategies did not work. Using new approaches to math, we redesigned the curriculum. The new curriculum allows students to become personally involved in math and to actively solve problems at their own pace and in their own language.

Objectives:
1. To reorganize 9th-12th grade geometry and algebra instruction, employing computers as tools of inquiry and investigation.
2. To improve educational opportunities in mathematics and technology for minority and disadvantaged students.



Procedures:
The first task was to help staff develop skills and confidence in computers and their use. Over a period of three years, all geometry and algebra staff were sent to local computer workshops.

Next, we piloted instructional computing strategies with all geometry classes. After the initial pilot, all geometry classes were given two periods per week using the Supposer.

In addition to the classroom computer work, students were permitted to sign out both the computers and the software over the weekends or long vacations. A group of two or three students met at a host parent's home during the weekend to work on a graded geometry project. These projects were then presented to the class the following Monday.

Recommendations:
The key to success in this project was staff development. If the teacher feels that the computer is really of value in math education, then the machine will have value in that teacher's class; otherwise it will not.

Computers in the classroom threaten many teachers. If teachers are given plenty of time and support to learn to use the computer, much of that fear goes away. Computers should be assigned freely for teacher use both at home and in school, before any attempt is made to use them for instruction. School-sponsored programs that permit teachers to buy computers at reduced rates are a great help.

Materials available:
Supposer workbook and worksheets (in Spanish), elementary function workbook.

Grant type:
FY87 Project grant.

Contact:
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Holyoke High School
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Holyoke, MA 01040
(617) 534-2020

Project M.E.R.G.E.
Lawrence

Curriculum areas:
Reading, language arts, social studies.

Grade levels:
6, 7, and 8.

Equipment:
Apple 11e, WANG PC.

Materials:
Commercial software programs, WANG database and word processing, PC LOGO.

Personnel:
Classroom teachers and students, program director.

Description:
Project M.E.R.G.E. aims to develop computer skills of bilingual, special education, and standard education teachers as well as students and to enable teachers to use a single computer within their specific curriculum areas. Through the use of word processing, database, PC LOGO and commercially produced software, students and teachers are exposed to the power of the computer as a valuable educational tool.

Objectives:
1. To integrate the use of the computer as an educational tool into the bilingual, special education and standard education classroom setting.
2. To provide training and technical in-class assistance to the targeted teachers.
3. To provide targeted students with practical computer skills while they are acquiring the course content in the various subject areas.

Procedures:
Teachers and students involved with Project M.E.R.G.E. were concerned with the use of technology as a research and writing tool. Some students created a database of various countries of the world while others researched and wrote reports using the word processor. Others were exposed to the ability to work with words and lists using PC LOGO.

Recommendations:
The benefits of this project were: students were motivated using the computer as a tool to help improve their writing and research skills; teachers were made aware of the value of a computer in the classroom setting; and teachers were motivated to use the technology within their curriculum areas.

Grant type:
FY88 Project grant.

Contact:
Bryan Cusack
Robert Frost School
33 Hamlet Street
Lawrence, MA 01843
689-3502

Project TECH
Lawrence

Curriculum areas:
English as a second language, language arts, mathematics, basic skills.

Grade levels:
4 through 6.

Equipment:
8 Apple IIe computers, 8 Apple Imagewriters.

Description:
This program provides 4th through 6th grade teachers with an opportunity to receive training in the use of computers and to plan for the effective use of computers in the instruction of students of low-English proficiency.

Objectives:
1. To integrate computers into the curriculum as a means of enabling limited-English proficiency students to successfully make the transition into mainstream classes.
2. To train selected teachers in the development of computer-based activities.

Procedures:
An Initial meeting was held with the teachers and the district selection committee to review goals, objectives, and activities of the project. Program participants were then selected. Participants developed and analyzed needs assessment and evaluation instruments for participating teachers and students. Workshops were conducted for program participants in which teachers developed activities for the use of computers in the classroom. These activities were then introduced in the classroom.

Recommendations:
A district considering replication is strongly urged to include additional training hours for instruction and hands-on experiences. They should also include a classroom management component focusing on the amount of time and scheduling of students on the computer.

Materials available:
A brochure describing the project.

Grant type:
FY87 Mini grant.

Contact:
Elaine M. Theriault
Lawrence Public Schools
58 Lawrence Street
Lawrence, MA 01841
(617) 685-9148

Project WRITE
Lunenburg

Curriculum areas:
All.

Grade levels:
11 and 12.

Equipment:
12 Apple IIe computers with printers.

Materials:
AppleWorks software, reference handouts.

Personnel
Project staff and full time aide.

Description:
The project established a word processing lab complete with twelve Apple IIe computers with printers and word processing software. A full time aide staffed the lab. The major objective of the writing project was to improve students' writing skills in a variety of content areas by having them learn to use word processing. Participating classes represented a cross section of the overall high school population.

The project provided for teacher-training materials; revision of existing curricula to incorporate word processing; and evaluation by staff, students, and an outside consultant.

Objectives:
1. To train teachers and students in word processing.
2. To integrate word processing with writing skills based on the Lunenburg Writing Program.
3. To use word processing as a tool for writing in the content areas.
4. To utilize the services of a word processing aide.

Procedures:
Students were scheduled to use the lab during study periods twice a week. During that time, they completed assignments using word processing. Often students' tasks involved producing draft copies, which they edited with their teacher's assistance prior to completing the final document. In the initial phases of the training, teachers accompanied students as a class to the lab.

Recommendations:
The Lunenburg Writing Project has been successful. Both teachers and students now have experience using word processing software. The word processing lab has been effectively meshed with the writing skills approaches of the adopted program. One of the strengths of the project was the close monitoring and record-keeping system. Additionally, the word processing lab aide has played a key role in the project's success.

Materials available:
AppleWorks Tutorial software, training worksheets (available on loan), individual course curricula incorporating word processing (available on loan).

Grant type:
FY87 Project grant.

Contact:
Sheila Flynn
Lunenburg High School
1079 Massachusetts Avenue
Lunenburg, MA 10462
(617)582-9941

Telecommunications as a Resource

Mansfield

Curriculum areas:
Any research area.

Grade levels:
6 through 8.

Equipment:
1 Apple IIe, 2 disk drives, monitor, modem, Imagewriter printer, TV used as large monitor for a class demonstration.

Materials:
Compu-Serve, data-link, disks, computer paper, and existing library materials.

Personnel:
Computer science teacher, library/media clerk.

Description:
Our project will be to purchase and integrate into the curriculum the use of an electronic information retrieval program. Students will be able to access up-to-date information for classroom projects.
Teachers will be able to insure that students are receiving only current information. Students will become familiar with the use of electronic technology as a research tool.

Objectives:
1. Students will be able to demonstrate ability to access informational resources from on-line data base system.
2. Students will utilize the on-line date base system as a resource to complete an assignment in the existing curriculum.
3. Students will utilize the on-line data base system as a resource in completing an assignment in the existing Geography curriculum in the 7th grade.
4. Students will utilize the on-line data base system to complete an assigned task in the 8th grade.

Procedure:
Students were first given a topic. Using available library resources the students had to narrow the topic to a specific aspect of it. From their initial resource, students must have a list of five key words dealing with their specific topic. Using these 5 key words, students will then log on to the on-line data base system. Students will then enter topic, 5 key words, call up available information, and retrieve a hard copy of up-to-date information.

Recommendations:
Other educators can best use this program as an up-to-date resource tool. This project has generated enough excitement and interest that teachers have asked us to expand it to include additional classes. The gifted and talented teacher in our building was so excited that his students were also included in additional research topics. These students have also been using the program to contact other bulletin board systems for information. One drawback was that we could not log on on-line with Compu-Serve - this has to be done over the phone and then through the mail. This was very time consuming.

Grant type:
FY88 Mini grant.

Contact:
Linda Swallow
Mary Lou Fader
Qualters Middle School
241 East Street
Mansfield, MA 02048
339-3611

Planning for Television:
Marblehead Public Schools and Cable Marblehead

Curriculum areas:
All.

Grade levels:
K through 12.

Equipment:
Use of 3/4'' format cable television studio.

Materials:
Blank videotape.

Personnel:
10 teachers, 1 consultant, 1 administrator.

Description:
This project involved looking at ways television could be used in the Marblehead Public Schools, especially with METCO and special education students. The project included in-service training for teachers on the topics of television production and critical viewing skills. An additional component of the project was the development of curriculum for two new courses, TVI and TVII.

Objectives:
1. To identify effective techniques for using cable television.
2. To conduct in-service seminars for teachers, focusing on critical viewing skills and basic television production techniques.
3. To design programs specifically geared to students in special education and Chapter I.
4. To plan in-service training programs for the remaining K-12 staff for 1987-88.

Procedures:
First a consultant was hired. He then met with the heads of Pupil Personnel Services, METCO, and Special Education to discuss the needs of the students served in these programs.

Next, eight in-service training sessions were conducted for ten teachers and one administrator. Office hours with the consultant and individual staff were established to allow individuals to work one-on-one with him.

Curriculum was developed for two new courses, TV I and TV II. Using the consultant's ideas, in addition to our own, increased the resources from which we drew to write these courses.

Recommendations:
Other schools could use a strategy similar to ours for integrating cable television into the curriculum. We have learned a lot about this integration process, as well as the time constraints and personnel expectations involved. We have developed a valuable network of trainers through this grant. One of the major strengths of this project was that it capitalized on staff enthusiasm.

Materials available:
Television I and Television II course.

Grant type:
FY87 Mini grant.

Contact:
Lesley Johnson
Marblehead Public Schools
2 Humphrey Street
Marblehead, MA 01945
(617) 631-0900 x140

Newburyport's Educational Technology Plan
Newburyport

Curriculum areas:
All.

Grade levels:
K through 12.

Equipment:
MacIntosh computer.

Materials:
Microsoft word, Pagemaker.

Personnel:
Consultant.

Description:
This program will be utilized by the administrative, teaching staff, and community participants to assess and improve the K-12 computer curriculum/education program and provide a strategic plan for curriculum development in all academic areas and implementation of curriculum revision that will impact 2,380 students K-12 and 214 teachers. This program will: utilize a K-12 needs assessment; develop a K-12 computer curriculum with scope and sequence; develop a three year action/implementation plan; provide for K-12 staff development and professional growth through in-service and graduate level credited courses; and allow teachers to visit exemplary programs, i.e., Chapter 188 Grant Programs, in other schools to evaluate their implementation potential for our K-12 program.

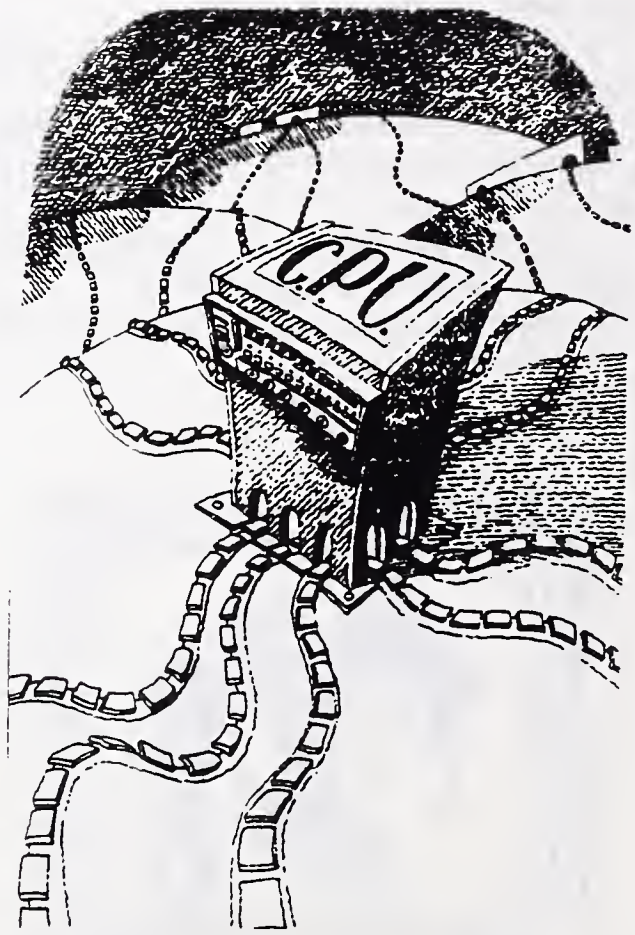
Objectives:
1. To write a three year educational technology action plan, beginning with a K-12 computer program needs assessment to identify priority areas and provide data regarding equipment, software, staff development, training, and curriculum development needs.
2. To develop four strands for which student competencies will be identified in the form of learning goals.
3. To offer K-12 staff development by providing the opportunities to visit and review model programs that Newburyport may adopt in the K-12 levels.
4. To make recommendations to the Professional Development Council regarding inservice courses that will help meet the needs identified by the needs assessment.
5. To provide access to educational technology to underserved populations in Newburyport.
6. To provide a model that other school districts may replicate and/or disseminate.

Recommendations:
This plan will provide a model for other schools to assess, develop and implement strategies to insure equitable access to technology tools. Students are entitled to the opportunity to use technology tools to broaden their quest for developing skills that will ensure a productive and fulfilling life.
Our technology plan is specific in its' recommendations for our own school system, and may not meet the needs of another school system.

Materials available:
When completed, a full report - three year educational technology plan and the curriculum developed will be published. Availability to be determined.

Grant type:
FY88 Mini grant.

Contact:
John Marion
Newburyport Public Schools
70 Low Street
Newburyport, MA 01950
(617) 465-4455



PROJECTing into the 90's with COMPosing TECHnology
Northborough

Curriculum Areas:
Writing for English.

Grade level:
6, 7, 8.

Equipment:
24 Apple computers, 6 printers, 1 enhancer.

Materials:
Bank Sheet Writer III.

Personnel:
English staff.

Description:
Project COMPTECH integrates technology into the English curriculum by creating a Writing Lab. All students experience the entire writing process in the lab setting through instructional modeling followed by individual writing time.
Special students are further targeted: remedial, gifted, and computer motivated. The lab is available more frequently to these special types during studies, access periods, and after school.
Because reading is taught separately, the English Department is responsible solely for teaching writing, and because word processing is taught in computer classes, we have an ideal setting to effectively integrate the computer into writing classes.

Objectives:
1. To establish a computer writing lab in which computers are made available to all students to compose writings.
2. To model the writing process with all classes.
3. To have students compose writings individually using the word processor.
4. To provide more opportunity for teacher/student and student/student interaction.
5. To address special needs at both ends of the ability range.
6. To publish more student writings.
7. To involve parents in the computer lab.

Procedures:
All students were scheduled to use the lab during English classes for three to five periods a week initially. Once each class had gone through the entire writing process from brainstorming to final copy, classes were scheduled for at least one period a week to continue more individualized projects. Computers were also made available, when possible, during study halls, access periods, and after school.

Recommendations:
Project COMPTECH has been successful. Teachers and students have now all experienced writing in the lab. Word processing has been integrated into the pre-existing English curriculum which emphasizes the writing process approach.
There were some initial scheduling and equipment problems. Adding the plus of Apple Talk to give all computers access to a printer has created some technological problems that are still being resolved.
Student enthusiasm for writing in the lab and satisfaction with the resulting product has been universal.
A Writing Lab could be beneficially incorporated into any writing program on any level.

Materials available:
A short videotape explaining the program.
Some student activities that support our own writing program.
Command summary charts for Bank Sheet Writer.

Grant type:
FY88 Project grant.

Contact:
Nadine Henderson
Northborough Middle School
145 Lincoln Street
Northborough, MA
(617) 393-2558

Distance Learning Applications Based on Two-Way TV
North Chelmsford and Concord

Curriculum areas:
Language arts, foreign language, science.

Grade level:
12.

Equipment:
Television equipment.

Materials:
Videotape.

Personnel:
Teachers, camera persons, engineers.

Description:
Chelmsford High School was able to extend its two-way interactive link beyond the University of Lowell to Concord-Carlisle High School. The connection allowed Calculus II to be taught to a low-enrollment course to students in Concord by a teacher in Chelmsford. Conversely, Chelmsford students were able to participate in a Speech class which was transmitted from Concord.

Objectives:
1. To train Russian and Calculus teachers in the techniques of teaching two-way TV at the University of Lowell in preparation for teaching the project.
2. To schedule students into Russian I and Calculus II at both schools, and to have students successfully complete a course in either subject.

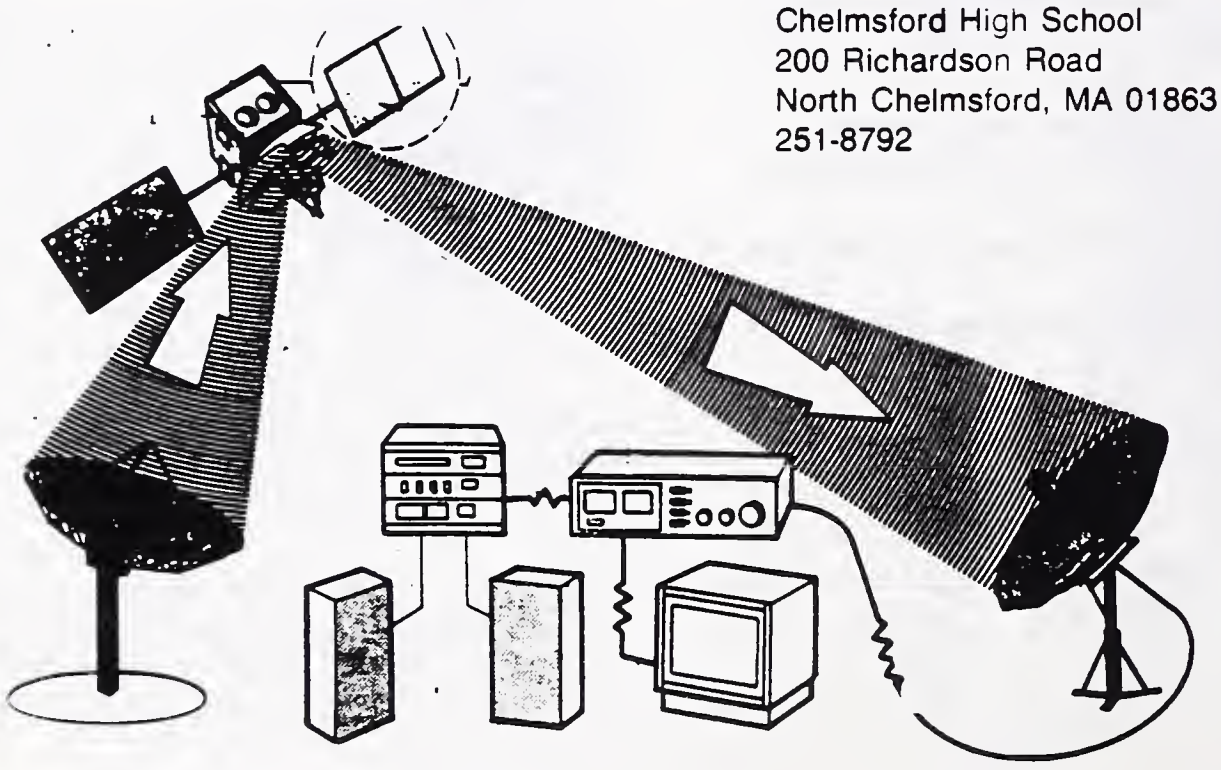
Procedures:
Student interaction between classes was more apparent in Speech than in Calculus II, because of the nature of the course which encouraged student critiquing of class assignments. Whereas the blackboard was used more readily in the Calculus II class by the teacher, there was less student interaction. Through the use of a courier students at both sites received materials such as tests and handouts in a timely fashion.

Recommendations:
Besides being able to teach classes to low-enrollment courses, the teachers were able to assess their individual teaching styles and to plan new strategies for regular classroom instruction. The Steering Committee encountered technical problems early in the project which required some troubleshooting. These problems have been resolved and the project is progressing nicely.
Having viewed the first year as a 'test project', both Chelmsford and Concord are looking forward to working together on interactive projects next school year.

Materials available:
Copies of some of the videotaped classes can be viewed upon request by calling 251-8792, Ext. 4381.

Grant type:
FY88 Project grant.

Contact:
Gail Gunn
Chelmsford High School
200 Richardson Road
North Chelmsford, MA 01863
251-8792



PROJECT SHINE

Norwood

Curriculum areas:
English, social studies, science, computer science.

Grade level:
5-12.

Equipment:
Personal computers, modem.

Materials:
Communications.

Personnel:
Teachers.

Description:
This project will create an interdisciplinary regional student newspaper and a model news service focusing on multicultural and environmental issues, and in the process, incorporate word processing and telecommunications into classroom assignments in English, Science, and Social Studies throughout the Boston area. Special needs, library/media and computer education teachers, as well as Science, English, Social Studies, and teachers at the secondary level, from diverse communities within the Greater Boston Region, will collaborate via a telecommunications network to share the expertise and information necessary to achieve the projec goals.
The grant will allow us to access resources available, explore teachers' ideas and methods for integrating technology into the curriculum, train teachers and students, and develop specific plans for integrating telecommunication skills.

Objectives:
1. To identify specific needs in participating schools and the range of resources currently available, coordinate efforts and the disbursal of project resources.
2. To develop a telecommunications training program for participants.
3. To train participants in telecommunication skills.
4. To develop environmental and multicultural units using word processing and telecommunications that will result in regional newspaper articles.
5. To schedule and implement curriculum units making provisions for student and observer feedback and videotaping.
6. To incorporate outcomes of the individual units into the regional newspaper.
7. To evaluate project effectiveness and disseminate.

Procedures:
In preparation for the implementation of the project, it was necessary to establish systems to implement curriculum: phone lines, modems, communications software, etc. Schools were then assigned Telecommunication Team members who will coordinate curriculum projects. Step-by-step lesson plans for telecommunications training, including electronic mail, forums, file transfers, and on-line searching strategies were then developed as well as a uniform set of rules and protocol for use of the communications network. Training sessions were scheduled followed by four to six hours of hands-on experiences with on-line data base searching, resource sharing, and electronic mail via the telecommunications network at each school. The final activity included a two hour Whole Group Session for closure and setting up partnerships for curriculum development within the framework of the regional newspaper and an identification of Environmental and Multicultural Topics to be addressed by the Regional Newspaper.

Recommendations:
The procedures set up have worked very effectively thus far. The telecommunications training packet is an excellent guide for teachers. The most efficient on-line conferencing and mail system will have been found. All bugs will have been worked out. Greatest strength: teachers from different school systems working together. Greatest weakness: coordinating fifty teachers from seven school systems.

Materials available:
Telecommunications manual.

Grant type:
FY88 Project grant.

Contact:
Louis J. Buscone, Jr.
Willett School
100 Westover Parkway
Norwood, MA 02062
(617) 762-6804

H.S. English Word Processing Computer Lab/Library Computer Center

Peabody

Curriculum areas:
English composition, creative writing.

Grade levels:
9-12.

Equipment:
21 Apple Computers, printers, tables, chairs, electric services purchased by Local Educational Authority.

Materials:
Appleworks, disks, computer paper.

Personnel:
2 microcomputer aides.

Description:
The project set up an English Microcomputer Writing Lab with 15 terminals, and a Library Microcomputer Center with 6 terminals. The grant funded the salaries for 2 microcomputer aides. The project gave all Grade 9 English students, Grade 10-12 students enrolled in writing electives, and Grade 11 and 12 students in need of meeting B.S.I.P. competency requirements, the opportunity to learn Word Processing skills as part of their regular English/writing/basic skills offerings.

Objectives:
1. To provide every freshman English student an opportunity to be scheduled into an English Microcomputer Laboratory at Peabody Veterans' Memorial High School for a minimum of one class period per week.
2. To develop and apply word processing skills using 'AppleWorks' under the guidance of each English classroom teacher, with the assistance of a paraprofessional microcomputer aide employed throughout the school day.

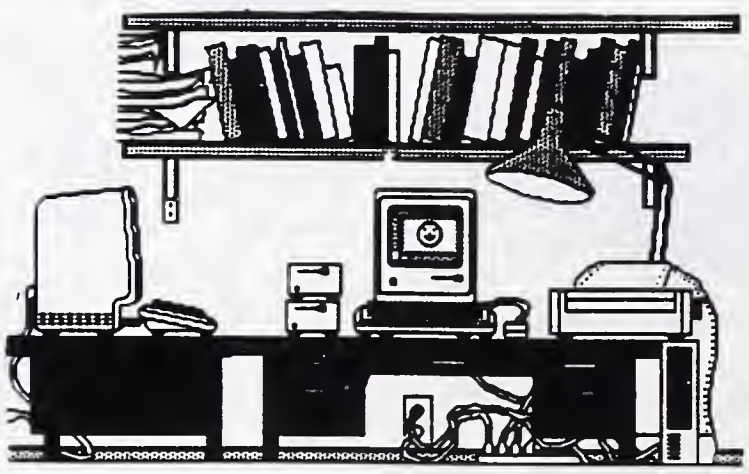
Procedures:
The LEA purchased equipment and materials sufficient to set up two computer labs. Microcomputer aides were then given the necessary training as were the English Department faculty. Every attempt was made to provide all students in the grant target population with an opportunity to develop word processing skills for a minimum of one period per week.

Recommendations:
This appears to be one of the best programs to involve English teachers with modern technology in word processing and to provide the student with an exciting, modern, and enjoyable way to improve writing skills. This program has made both teachers and students desirous of writing compositions using the Writing Lab. The biggest problem is that we cannot currently handle the demand for use of the Lab that this program has created. We see the need for future expansion.

Materials available:
Use commercially developed materials.

Grant type:
FY88 Project grant.

Contact:
C. Milton Burnett
McCarthy School
76 Lake Street
Peabody, MA 01960
531-1600



Using the Computer as an Instructional Tool

Peabody

Curriculum areas:
Mathematics, language arts, reading.

Grade levels:
K through 5.

Equipment:
13 Apple IIe computers.

Materials:
Minnesota Educational Computing Consortium (MECC) software for math, language arts, and reading, blank disks, surge protectors.

Personnel:
8 trained computer aides.

Description:
The project's goal is to provide every elementary student with the opportunity to use a computer in a lab setting for one hour each week.

Objectives:
1. To provide ongoing computer opportunities.
2. To train computer aides.
3. To evaluate MECC software.

Procedures:
Paraprofessional computer aides were trained and MECC software was evaluated. Each class was scheduled for one hour of lab per week. The program was monitored using the computer resource person.

Recommendations:
Because our lab had 13 computers, we needed to split the classes in half, allowing each group to work in the lab for a half hour at a time. The program works well and has a high degree of acceptance.

Grant type:
FY87 Project grant.

Contact:
John H. Walsh
McCarthy School
76 Lake Street
Peabody, MA 01960
(617) 531-1600 x130

Computer Literacy Applications for Special Students
Quincy

Curriculum areas:
Business, career application, special education.

Grade level:
10-12.

Equipment:
TV monitor.

Materials:
Business applications and utility, textbooks.

Personnel:
Special Ed. Teacher, Business Dept. Head.

Description:
This project created a new program for special needs students to learn basic computer literacy skills, and to apply them to business operations.

Objectives:
1. To enable the students to become proficient with using computer technology especially in relation to business applications.
2. To develop basic job entry skills so as to enhance the employability profile of the students.

Procedures:
Beginning with a total familiarization of the keyboard and basic operations, the students began to use AppleWorks and related software to create word processing, database and spreadsheet files. They applied these areas to simulated exercises from the business field.

Recommendations:
This has been a very successful first year, and will definitely be expanded for more students next year. It was a regular scheduled course for resource room students; no typing or math skills were required prerequisites, an important differentiation from the mainstream. The only weakness was we needed more fun software to supplement the business materials.

Materials available:
In process.

Grant type:
FY88 Mini grant.

Contact:
Alice Combes
Quincy High School
52 Coddington Street
Quincy, MA
471-0100

Project EXCEL
Randolph

Curriculum areas:
English, science, social studies, math.

Grade level:
3 through 8.

Equipment:
Apple IIe.

Materials:
Logo, LEGO-LOGO, Logowriter, H.O.T.S. program, Exploring LOGO, Welcome to LOGO.

Personnel:
Teachers and consultants.

Description:
Project EXCEL will expand the integrated use of technology in the school curriculum and emphasize the development of thinking skills. Teachers will voluntarily take part in workshops and then implement what they have learned in their classes.

Objectives:
1. To ensure equal access to computers for all students including girls, special needs students and ESL students.
2. To provide opportunities to develop thinking skills and cooperative special interaction.
3. To train teachers in use of selected software as well as improve their computer skills and classroom management skills.
4. To produce a set of instructional strategies to assist teachers.
5. To strengthen the use of LOGO in grades 3-8 through the use of LEGO-LOGO and specific lesson plans developed to be utilized across the curriculum.

Procedures:
14 teachers were sent to the Museum of Science for workshops in LEGO-LOGO. Members of the Local Computer Advisory Committee interviewed and selected a consultant to work with the volunteer teachers to develop lesson plans with LOGO in a series of workshops. Some teachers are also piloting LogoWriter in their classrooms. As the students of these teachers use the software, they will keep a log which will address specific objectives as part of the evaluation process.

Recommendations:
When the series of lesson plans are developed, they will be available to other schools. As this project is still running, it is difficult to evaluate its strengths and weaknesses. However, one weakness is based on the cycle for applying and receiving approval of a project. For example, securing the right consultant to address specific needs required more time than we originally anticipated. Therefore, we had a late start.

Materials available:
A series of classroom lessons will be developed this semester and may be borrowed by other schools.

Grant type:
FY88 Project grant.

Contact:
Dr. Lyn A. Huttunen
Office of the Superintendent
40 Highland Avenue
Randolph, MA 02368
963-7800, Ext. 21

Interactive Video Classroom
Reading

Curriculum areas:
All.

Grade levels:
10 through 12.

Equipment:
3 cameras, videocassette recorder, 2 monitors, one 40-inch television, audio mixer, microphones, cables.

Personnel:
AV director, English teacher.

Description:
Our long-term goal is to offer a number of courses to the collaborating schools, via two-way interactive video. Our more immediate goal is to begin teaching courses in the towns of Reading and Wakefield using this technology. The purpose of this collaborative is to retain curriculum offerings that might otherwise be dropped because of declining enrollment.

Objectives:
1. To establish an interactive video classroom at both Reading and Wakefield high schools.
2. To implement a teacher in-service program for participating Reading and Wakefield teachers.
3. To teach a prototype course.

Procedures:
A cable was linked between Wakefield High School and Reading High School. A classroom was then selected and appropriately equipped to test the link-up. A select group of students were identified for participation and oriented as to the nature of the project. A curriculum was developed and a teacher orientation was held. Upon completion of the course, students will be evaluated to determine the knowledge gained from this project.

Recommendations:
Schools that are cutting back on curriculum offerings as a result of declining enrollment are potential users of this program. The program's strength is that it provides a solution to the difficult and common secondary school issue of diminishing curriculum offerings.

The difficulties in carrying out a project such as this include the numerous and complex issues related to the physical construction of the system; these issues involve the participating schools, the cable television companies (which may be competitors), and even the municipal government.

Grant type:
FY88 Project grant.

Contact:
Joseph F. Cain
Reading Memorial High School
62 Oakland Road
Reading, MA 01867
(617) 944-8200

Electronic Networking as a Classroom Resource
Rockland

Curriculum areas:
English, library science, social studies, mathematics, science.

Grade levels:
6.

Equipment:
Apple computer, modem, printer.

Materials:
Telephone lines, subscription to The Source on-line data service.

Personnel:
4 classroom teachers.

Description:
A grade 6 team was selected for this project. One teacher served as supervisor and directed the utilization of the system by students. The computer staff set up the system and provided training. Students have become quite comfortable in using the network.

Objectives:
1. To utilize an electronic resource as part of the regular curriculum.
2. To train staff and students in the use and application of the hardware.

Procedures:
Equipment was purchased and installed to first train staff and then to provide instruction for students.

Recommendations:
The system is definitely worthwhile for classroom use. It is most appropriate for upper grade levels. Staff training is critical to the successful implementation of a resource like this one.

Grant type:
FY87 Mini grant.

Contact:
John Pini
Rockland Public Schools
34 Goddard Avenue
Rockland, MA
(617) 878-4340

PALS High School Literacy Program
Salem

Curriculum areas:
English, ESL, adult literacy, remedial reading.

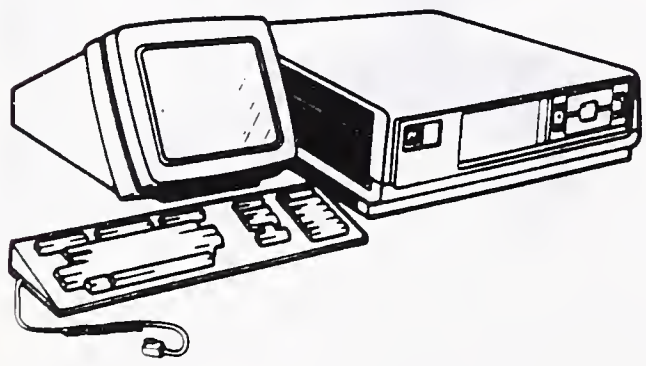
Grade levels:
10 through 12.

Equipment:
IBM, Info-windows, PC XT's, PC JR's, Pro Printers, video disc, platers, typewriters.

Materials:
PALS software, Tcuch Typing and Word Processing software, trade books, PALS journals.

Personnel:
Coordinator, teachers.

Description:
A literacy lab utilizing computers, laser discs, and typewriters utilizes new software which is highly interactive and designed to remediate reading skills among students reading at or below fifth grade level. Students visit the lab daily and participate in a variety of reading and writing activities aimed at developing literacy and at beginning job skills. Approximately 100 students, grades 10-12 visit the lab daily with their teachers. Students include special education and bilingual populations.



Objectives:
1. To increase student reading skills by 2-3 years.
2. To develop writing and job search skills in students.

Procedures:
Students at-risk are identified through a variety of methods such as test scores, guidance counselors and teacher referrals. These students are then pre-tested and interviewed to determine the appropriateness of the program. Subsequently, students are programmed for a full-year course in the PALS lab. At the conclusion of the program, students are post-tested and individual recommendations are made for courses outside the PALS program.

Recommendations:
This program appears to address the need for reading remediation of young adults and adults, especially diverse, urban populations. Students appear to enjoy learning through advanced technology. Much of the stigma attached to remedial programs is not present. Students also appear to place great value on the career training they receive in touch typing and word processing.

Materials available:
Materials can be obtained from IBM, Copley Place, Boston.

Grant type:
FY87 Project grant.

Contact:
Thomas Sadoski
Annette Stavros
Salem High School
77 Willson Street
Salem, MA 01970
745-9300 x134

Using High-Tech Tools
Shrewsbury

Curriculum areas:
English, American history, science, community studies.

Grade levels:
4 through 12.

Equipment:
14 personal computers with disk drives, 4 printers, 1 modem, telephone line, CD-ROM disc player system.

Materials:
Communications software, outlining software, database software.

Personnel:
Support staff of computer specialists and aides.

Description:
The project trained a cross section of students and teachers from grades 4 to 12 in using up-to-date technology to do research. We developed tools and major approaches to implement Shrewsbury's "Research Skills Sequence" framework. These tools included on-line databases, commercial databases and CD-ROM discs, self-constructed databases, and 'outlining' software.

Objectives:
1. To enable students to use on-line databases and CD-ROM technology to gather information.
2. To enable students to use information-handling software to organize their information (i.e., outlining, bibliography).
3. To enable students to develop data files and use commercial databases to study their community and their country.

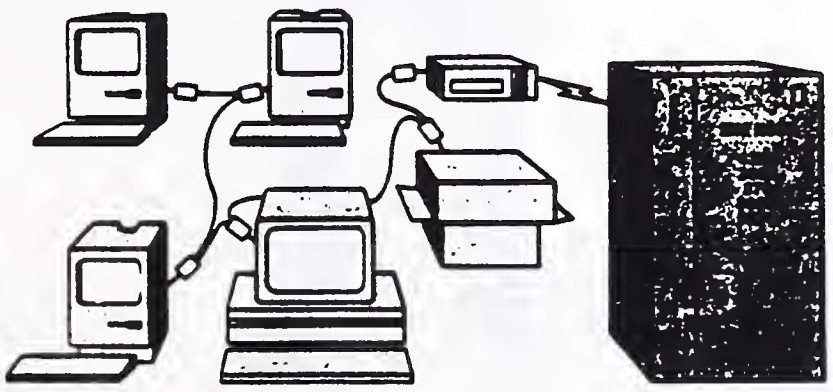
Procedures:
Teachers, administrators, and other staff members received in-service training in the new research technology and then planned curriculum units using that technology. About 400 target population students in grades 4 through 12 carried out these curriculum units as part of Shrewsbury's research skills sequence.

Recommendations:
It is important for educators to learn the classroom uses of the new research technology and to practice these uses. The use of these new tools should be integrated into the curriculum, along with traditional research practices, across the grade levels.

Materials Available:
A series of reference booklets providing 'how to' instructions for the technology skills; curriculum booklets aimed at selected grade levels from 4 through 12 in History, English, and Science; development of a 1.5 credit graduate course entitled "Using High Tech Research Tools".

Grant type:
FY87 Project grant.
FY88 Project grant.

Contact:
Thomas Plati
Shrewsbury High School
45 Oak Street
Shrewsbury, MA 01545
(617) 533-2092



Quantitative Thinking - Applying Technology in the Classroom
Somerville

Curriculum areas:
Math, science, social studies.

Grade level:
4 through 12.

Equipment:
Apple II computers.

Materials:
Appleworks, LOGO, and others, print materials.

Personnel:
Classroom teachers.

Description:
A series of six individual curriculum units are being produced related to building quantitative thinking skills in mathematics, science, and social studies. The units are being developed for use at a number of grade levels, 5-12. The units will include lesson plans, computer activities and supporting print materials.

Objectives:
1. To plan, design and produce six individual curriculum units related to quantitative thinking at several grade levels using educational technology.
2. To provide technical assistance to teacher-developers who will be producing the materials.
3. To disseminate curriculum units locally and to make them available statewide through GBREC.

Procedures:
Teacher developers will design curriculum units within their subject areas and grade levels. As the need arises, student aides will be provided to assist in the production of supporting print materials. The units will be piloted, and evaluated by each teacher and then edited for dissemination.

Recommendations:
These units are intended for use by teachers at the appropriate grade levels, (grade 5, social studies, grade 7-8, mathematics and science, high school math and biology). Units will be self-contained and usable by teachers with little or no computer experience. Each unit will provide a way of using computer technology to enhance the achievement of present curriculum objectives related to teaching quantitative thinking skills.

Materials available:
Unit plans, lesson plans, print materials for student use.

Grant type:
FY88 Project grant.

Contact:
Ron Koehler
Powder House Community School
1060 Broadway
Somerville, MA 02143
625-6600, Ext. 6749

Four C Project
Southwick

Curriculum areas:
Social studies, science, language arts, mathematics.

Grade levels:
3.

Equipment:
6 Apple II GS, printers, tables.

Materials:
6 copies each of Bank Street Writer, Filer, Typing Tutor, paper, blank disks, ribbon.

Personnel:
Computer coordinator, 6 teachers.

Description:
The purpose of the FourC project is to develop a computer-enhanced curriculum which works toward building higher level skills of communication and comprehension; organization and analysis; and thinking and problem solving. FourC teaches elementary students how to use a filing program to create organized collections of data, to use the data for analysis, to solve problems, and to communicate solutions using a word processor. In the beginning students will use software to enhance writing, problem solving, categorizing, etc. Eventually, the students will work in groups to analyze the information they gather and report their conclusions using the word processor.

Objectives:
1. To enhance the higher level thinking skills of students.
2. To improve the communications skills of students.
3. To explore the issues related to technology and ethics by discussing relevant and pertinent issues with students.
4. To train teachers in the techniques involved in teaching thinking skills, communication skills, and technology issues.

Procedures:
Each class received a short introduction to using the hardware and software. Students took turns during two classes doing various tasks to become familiar with the entire system. Next each class spent two to four classes on using the word processor. Each student group completed one or two short writing assignments for social studies or science. After that we spent several classes using a typing tutor. Staff and students saw a need to improve keyboard efficiency. Our next step is to learn how to use data base software and then completely integrate the computer use into all subject areas.

Recommendations
Schools with limited funds can make use of applications software in various areas of the curriculum. It has general applicability to all areas and many grades rather than being limited like CAI. Integrating use into the curriculum avoids the drawback of not enough time, which is the common excuse for not using computers. Also, we are emphasizing higher level skills needed by students. The complaint of nationwide reports and business over the last several years is that students do not have enough skills in thinking, communication, and cooperation. As with any worthwhile project, training and support are necessary ingredients to success.

Grant type:
FY88 Project grant.

Contact:
Louis C. Crawford
C. G. Schiller
Woodland School
80 Powder Mill Road
Southwick, MA 01077
569-5874

Micro-Computer Based Lab in Physics
Southwick

Curriculum areas:
Science.

Grade levels:
11 and 12.

Equipment:
Apple II GS system, large screen monitor.

Materials:
Interfacing materials - physics/chemistry, project graphics, Vernier materials.

Personnel:
Teachers.

Description:
This project will enable our science students to use the latest technological equipment in their acquisition of science knowledge. The students will more actively be engaged in the learning process. Through the use of probeware and interfacing equipment, learning will become a more enjoyable and active experience. Taking advantage of the special capacities of the computer, science classes will be allowed to perform experiments that they could never do before. The use of computers will broaden and enrich our curriculum. Due to budget restraints, we would begin our computer/probeware usage in our physics classes. Once in place and tested, the microcomputer based lab will be expanded to include other science areas in our 9 through 12 curriculum.

Objectives:
1. To provide students with a better tool to improve the way students learn to handle and process data obtained through physics experiments and investigation.
2. To improve student understanding of physics concepts through the use of computer basic skills.

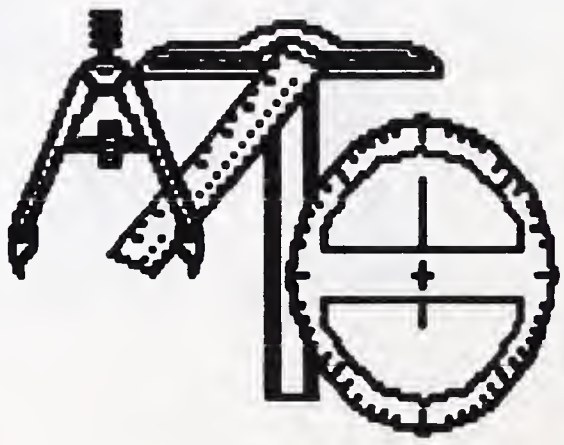
Procedures:
Following our normal curriculum in physics, the computer greatly facilitates in the process of data collection, processing and data analysis. Probeware is used to allow direct measurement of temperature, sound, motion, light, etc. Students focus more on the outcomes and interpretations of an experiment/demonstration through the use of the computer. Because data manipulation is easy using the computer, students ask more 'what if' questions. Students learn that the computer can be a useful tool for gathering and processing information.

Recommendations:
With proven interfacing materials or other suitable software any science teacher can make use of the computer in his/her class. Either commercially prepared software/interfacing or individually prepared materials are essential. No prior computer knowledge is needed. The computer as a tool is a valuable motivational device. Limitations: (1) lack of enough worthwhile interfacing materials and software; (2) time for teachers to become thoroughly familiar with usage; (3) lack of funds to purchase interfacing materials.

Materials available:
All commercial materials.

Grant type:
FY88 Mini grant.

Contact:
Harry F. Syrenne
Southwick Public Schools
93 Feeding Hill Road
Southwick, MA
(413) 569-6171



Computer Aided Drafting (CAD) Technology Project
Springfield

Curriculum areas:
Industrial arts, drafting.

Grade levels:
7, 8, 9.

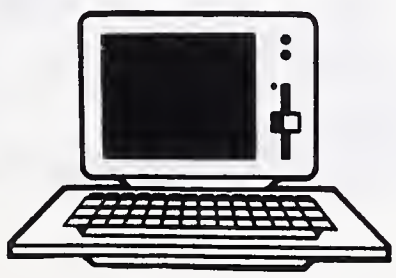
Equipment:
6 computer aided drafting (CAD) systems.

Materials:
Compatible software programs.

Personnel:
6 Industrial Arts-Drafting teachers.

Description:
This project will expand and improve the instruction of Drafting in Industrial Arts Technology Education in the six junior high schools in the Springfield Public Schools by introducing Computer Aided Drafting (CAD) as an instructional tool and as a supplement and reinforcement of instruction in conventional drafting skills. This project will familiarize 7, 8, and 9th grade students with the hands-on application of CAD and its relevance to today's technological society. The project will also complement academic and basic skills instruction by assisting students to visualize, conceptualize and perform direct hands-on application in a discipline that emphasizes mathematics, problem solving skills and creative thinking.

Objectives:
1. To integrate CAD as an instructional tool to reinforce instruction in the Drafting Component at the Industrial Arts program in the six junior high schools in the Springfield Public Schools.
2. To utilize the implementation of a CAD component to the Drafting curriculum to expose junior high schol students to the use of advanced technologies as a positive, people friendly experience and not a sterile, non-responsive condition.
3. To complement academic and basic skills instruction.



Procedures:
The CAD Technology Project began with the selection of appropriate equipment and software programs. A staff training program was then developed, followed by implementation with junior high school students.

Recommendations:
The introduction of CAD into the existing Drafting component of the Industrial Arts/Technology Education Project at the junior high school level provides students with the opportunity to be exposed to computerized drafting as an integral part of the conventional drafting program. This introductory program is highly motivational and provides an excellent awareness and preparation for advanced career work at the high school level. This program was highly successful and will be expanded during the 1988-1989 school year.

Materials available:
The Springfield Public Schools is currently re-writing the Drafting curriculum for the junior high school level to include curriculum modifications generated by the acquisition of the equipment. This information will be available for dissemination in July 1988.

Grant type:
FY88 Project grant.

Contact:
David M. Cruise
Springfield Public Schools
195 State Street
Springfield, MA
(413) 787-7121

Project T.E.C.H. (Technology Enhanced Curriculum Help)
Sutton

Curriculum areas:
Language arts, writing, reading.

Grade levels:
K - 2.

Equipment:
IBM.

Materials:
Writing to Read software.

Personnel:
Teachers and an aide.

Description:
Project T.E.C.H. enhanced the reading and writing skills of students in kindergarten and first grade by establishing a Writing to Read Lab. For one hour a day children came to the lab. The program builds reading and writing skills by using a phonemic spelling system. A trained aide assisted teachers in monitoring each child's progress as the students progressed at their own pace.

In addition, word processing was offered to second grade students. The Talking Text writer was used within the regular classroom setting to enhance writing and editing skills.

Objectives:
1. To improve reading and writing skills in kindergarten and first grade students by establishing a computer lab that utilizes computer assisted instruction and word processing.
2. To improve the quality of student writing in second grade through word processing.
3. To help teachers individualize and meet the diverse needs of their students through technology assisted instruction.

Procedures:
Program implementation was preceded by in-service training for administrators, teachers and aides. The Writing to Read program was introduced, followed by the second grade introduction to word processing. Short and long term data on the changes in the reading and writing ability of students was collected.

Recommendations:
I highly recommend both the I.B.M. Writing to Read program and the Talking Text Writer. Children are highly motivated to write. Kindergarten students are composing their own stories!

The only weakness is the cost of the program. Without the grant, we would not have been able to install an IBM lab, hire an aide and supply the software and word journals.

Grant type:
FY88 Project grant.

Contact:
Beverly Brown
Sutton Elementary School
Boston Road
Sutton, MA 01527
865-6801

Computers in the School Curriculum
Union 28 (Erving, Leverett, Shutesbury, and Swift River Elementary Schools)

Curriculum areas:
Math, science, writing, reading, social studies.

Grade levels:
Pre-K through 6.

Equipment:
Apple II series computers.

Materials:
Bank Street Writer, Delta Drawing, Junior Typer, Logo Writer, Safari Search, AppleWorks.

Personnel:
Computer coordinator.

Description:
Four small elementary schools were involved. In each school, teachers met formally and informally to identify how they would like to integrate computers into their curriculum. Then the computer coordinator assisted them in identifying and using appropriate materials.

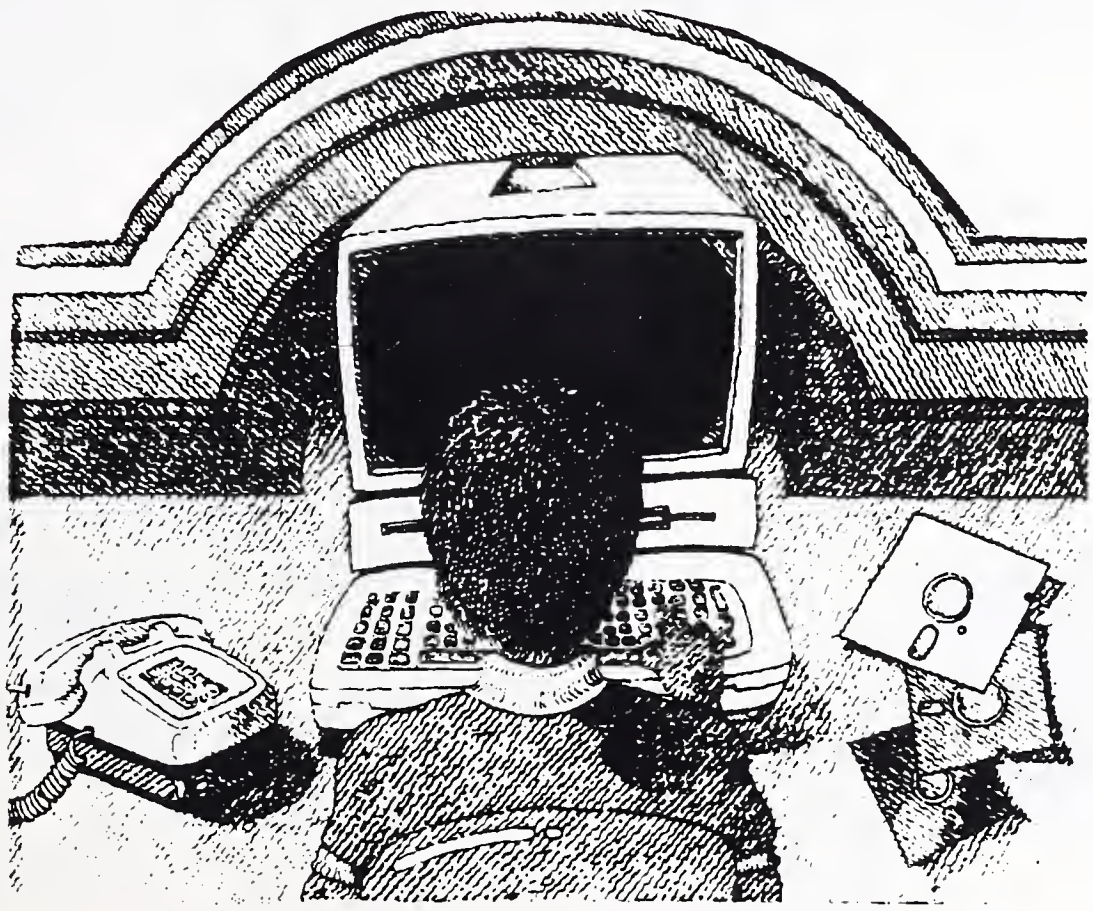
Objectives:
1. To integrate computers into the curriculum.
2. To create support networks/users groups.
3. To create a union catalog of all software.

Procedures:
Teachers were trained to use each piece of software. Then they worked with the computer coordinator to develop classroom lessons. Then the lessons were presented to students.

Recommendations:
They can best use this program as a model of the role of elementary school computer coordinator. The weakness of the program is the insufficient amount of time funded for the coordinator.

Grant type:
FY88 Project grant.

Contact:
Len Huber
Shutesbury Elementary School
West Pelham Road
Shutesbury, MA 01072
(413) 259-1212



Project ECHO

Union 61 (Brimfield, Brookfield, Holland, Sturbridge, Tantasqua, Wales

Curriculum areas:
Language arts, computer applications.

Grade levels:
5.

Equipment:
Apple IIGS, Apple IIe microcomputers.

Materials:
Appleworks software, Apple Access software.

Personnel:
Classroom teachers, consultants.

Description:
Project ECHO is an integrated computer and language arts program. Using computers, grade 5 students from the Union 61 towns send electronic mail to one another via computers and modems. The program emphasizes technology as a useful communication and learning tool.

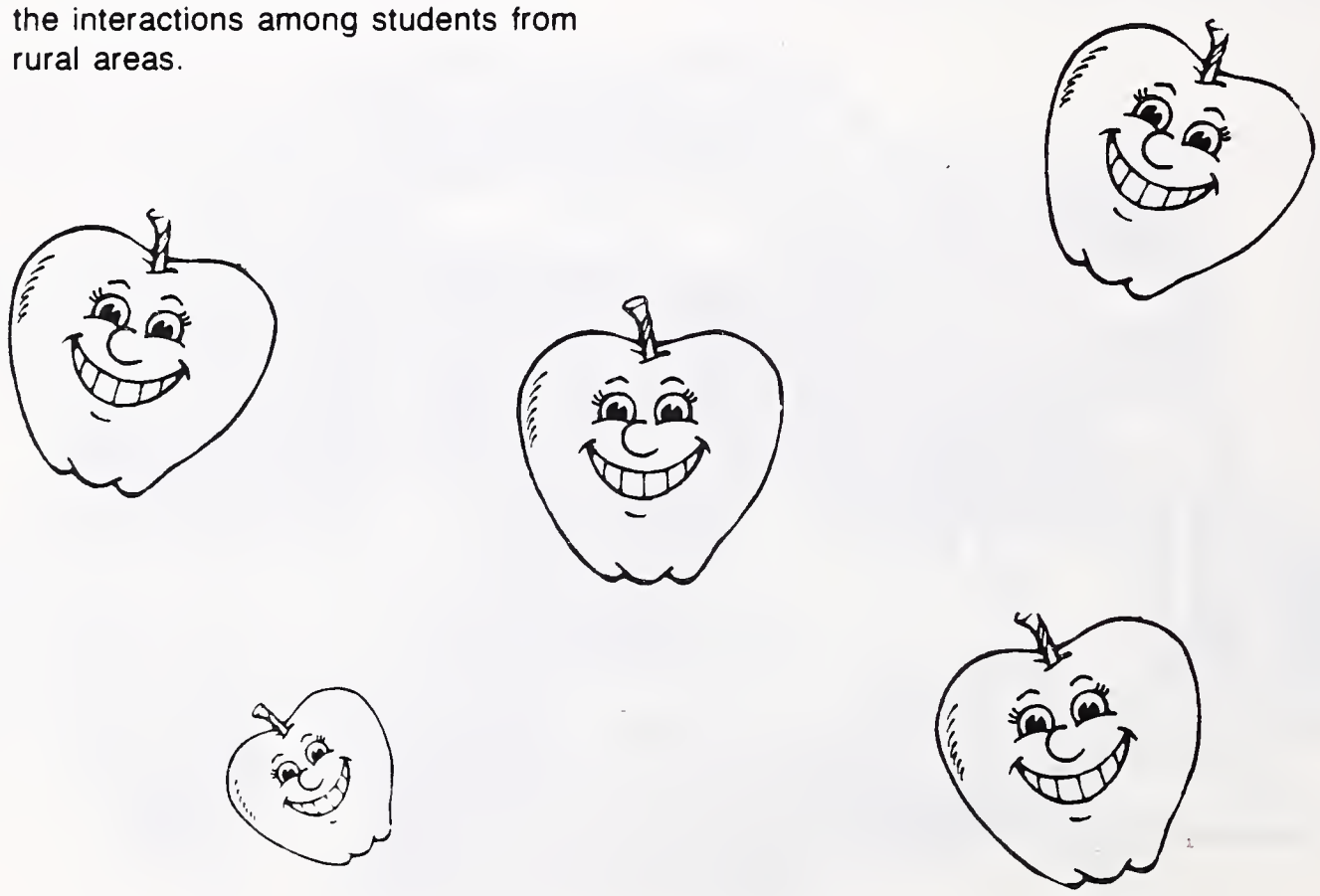
Objectives:
1. To foster computer literacy.
2. To increase opportunities to develop and practice writing skills.
3. To improve the interactions among students from predominantly rural areas.

Procedures:
The students involved with Project ECHO were involved with developing writing skills as well as improving their computer literacy. Students wrote pen pal letters and class newsletters, developed databases and practiced word processing skills.

Recommendations:
The project had several benefits in that it helped to motivate students to write as well as demonstrating the use of computers in the school curriculum. The project also motivated teachers to use the computer as part of the curriculum.

Grant type:
FY87 Project grant.

Contact:
Dr. Paul C. Gagliarducci
Superintendent's Office
Brookfield Road
P.O. Box 26
Sturbridge, MA 01566
(617) 347-9014



Project POWER
Walpole

Curriculum areas:
English, social studies.

Grade levels:
9 through 12.

Equipment:
18 Apple computer systems, 9 printers, video camera.

Materials:
AppleWorks software, Minnesota Educational Computing Consortium (MECC) AppleWorks training software.

Personnel:
A coordinator and high school teachers.

Description:
The long-term goal of the project was to increase students' use of the technology available at the high school level. This was done by encouraging teachers in traditionally non-computer oriented departments to learn about, identify, and use appropriate computer applications with their students. An inventory of available community and school department technology resources and a description of how they are currently integrated provided a basis for the project.

Instructional units incorporating computer and video technology were developed for the following courses: Freshman English, Sophomore U.S. History, Journalism, U.S. Economic History, International Relations, and Intensive Writing.

Objectives:
1. To identify the range of technology currently available as a basis for planning activities.
2. To explore ways in which general purpose computer applications and video technology can be used as tools for teaching research.
3. To teach information analysis, along with written and oral communication skills, to all students in grades 9 through 12.
4. To develop a logistical plan for the teaching of the newly developed curriculum units.

Procedures:
Initially, hardware, software and K-12 teacher computer usage was inventoried and a community resources database form was developed. Options for the use of the cable television studios were explored. An AppleWorks course was developed for teachers which allowed them to formulate specific instructional units. This time was also used to develop plans for accessing on-line databases and exploring exemplary programs in other communities. The concluding activity was to assemble a logical plan for teaching the newly developed curriculum units.

Recommendations:
A major strength of this project was the involvement of both novice and expert teachers and students in exploring these new computer applications within the regular content area courses, rather than in an isolated 'computer education' setting.
A major challenge we faced involved trying to train ourselves in new computer applications at the same time we were attempting to introduce these to students.
One component that was critical to the overall success of the project was the employment of a knowledgeable computer lab aide who was available to provide guidance to both teachers and students during free periods.

Materials available:
Current use and inventory report, six instructional units for English and Social Studies, a videotape (available for loan), format for parent volunteer handbook.

Grant type:
FY87 Mini grant.

Contact:
Linda B. Colvin
Walpole Public Schools
School Street
Walpole, MA 02081
(617) 668-5400

Collaborative Technology Integration Project for the Middle School Curriculum
Watertown (EdCo Education Collaborative)

Curriculum areas:
Mathematics, science, art, music.

Grade levels:
6 through 8.

Equipment:
Apple computers.

Materials:
Various software packages in Math, Science, Art and Music.

Personnel:
11 middle school teachers.

Description:
Eleven middle school teachers from five school districts worked collaboratively in teams of two or three to develop technology-integrated curriculum units in the areas of math, science, music, and art. Math projects involved problem solving, estimation, and geometry (using Logo). In music, the focus was composing; in art it was drawing. The science project used computer graphs for organizing and analyzing data.

Objectives:
1. To use technology to enhance the middle school curriculum areas of math, science, and the arts.
2. To improve problem solving, estimation skills, and number sense.
3. To improve visual-spatial thinking.
4. To improve higher-order thinking skills such as classifying and analyzing.
5. To provide experiences in music composition.

Procedures:
A request for proposals was prepared by the supervisory group. Teachers submitted proposals and worked individually on their curriculum units. Teachers had monthly meetings, working in teams of three or four to provide each other with ideas, resources, and feedback. Activities were developed and field tested in the classroom which generated feedback from students.

Recommendations:
The most valuable aspect of this project was the collaboration of teachers from different school systems. Teachers rarely have opportunities to do curriculum development with people outside their own schools. The project participants have learned a great deal from each other's projects. The variety of points of view and experiences represented in the project resulted in the development of quality materials.

Materials available:
Teacher-developed curriculum units.

Grant type:
FY87 Project grant.

Contact:
Thomas Oates
Assistant Superintendent
30 Common Street
Watertown, MA 02172
(617) 926-7700

Computers for Improving Communication, Stage II
Westborough

Curriculum areas:
English, foreign language, special education.

Grade levels:
9-12.

Equipment:
Typewriters, networked computer terminals, printers.

Materials:
Word processing software with electronic mail, communication software, student and faculty manuals, student exercise sheets.

Personnel:
Teachers and lab assistants.

Description:
This project was implemented to establish the use of computer technology and data communication as a standard procedure in the writing process. It will enable students to use the technology to improve their writing skills and also enable the students to use the data communications capabilities to share ideas and documents. As implemented, the project will provide students with a working knowledge of a word processor which will enable them to better perform the activities of editing, revising, and publishing of a document. The project will involve students in the journalism class using the computer to prepare their newspaper articles. The second aspect of the project involves grade 9 students in their English class. One group of students will be involved in the use of the computer and the other group will not. Comparison of the results from each group will be assessed.

Objectives:
1. To provide students with instruction in keyboarding and typing skills.
2. To provide students with instruction in the use of a word processor and communication software.
3. To introduce students to the techniques of document revision via the word processor.
4. To teach students how to use the word processor to organize their thoughts to enhance the writing process.

Procedures:
A keyboarding course was offered to all grade 9 students while all journalism students were instructed in the use of the word processor. Some grade 9 students will produce writing samples using the word processor while some students will write without a word processor. Evaluation of these writing samples will be compared to assess the effects of the project.

Recommendations:
The strength of this program is in its preparation and design. Input from the administration and several various academic departments was used to design the project. All involved expressed concerns and ideas as to how the project could best serve the needs of the students. In addition to the technical and mechanical aspects of this project, others could best benefit from this project by following the procedure by which it was developed. It is our hope that we can offer other educators the observations and experiences that we are experiencing with the project in the hope that they will benefit from our activities.

Materials available:
Course outline, student manual, instructor's manual, student exercise sheets. Videotape of Stage I of project.

Grant type:
FY88 Project grant.

Contact:
Eileen Gress
Assistant Superintendent
Westborough Public Schools
Westborough, MA 01581
(617) 366-8551

Integrating Technology in a Middle School Curriculum
Westfield

Curriculum areas:
Language arts, social studies, science, mathematics.

Grade levels:
7 and 8.

Equipment:
20 MacPlus computers, 4 printers, hard disk, projector, Appletalk wiring.

Materials:
Microsoft Works, Typing Tutor, and MacServe, software, Word Moose Pads.

Personnel:
1.5 teachers.

Description:
Through the use of a computer networking system, students learn keyboarding and word processing, while gaining computer literacy. Students also complete projects in major curriculum areas on the computer system. Seventh grade courses are provided for all students, and the eighth grade course is offered as an elective.

Objectives:
1. To modernize and expand the existing typing program using computer technology.
2. To enable students to learn keyboarding and word processing and, in the process, gain computer literacy.
3. To provide students the opportunity to use technology in major curriculum areas and to monitor their performance.
4. To increase teachers' awareness of technology and to enable teachers to develop plans for incorporating technology into the curriculum.
5. To increase the community's awareness of technology.

Procedures:
Students receive basic instruction in word processing, database management, and spreadsheet use and then apply this information to major curriculum areas through specific projects.

Recommendations:
This project provides an effective base for integrating technology into a middle or high school environment.

Materials available:
Information booklet and videotape (available on loan).

Grant type:
FY87 Project grant.

Contact:
George O'Brien
Westfield Public Schools
22 Ashley Street
Westfield, MA
(413) 568-9592

SHIP - Sharing Holistically Island Publications
West Tisbury (Oak Bluffs)

Curriculum areas:
Language arts.

Grade levels:
5, 6, 7, and 8.

Equipment:
9 MacPlus systems, extra drives, 4 Imagewriters.

Materials:
Microsoft Works, Pagemaker.

Personnel:
English teachers, computer coordinators, and four principals.

Description:
The SHIP Project is designed to integrate the junior high language arts curriculum and desktop publishing.

By utilizing the power of the Apple MacIntosh, students, teachers and parents publish original work and share material electronically across the Island. Students have gained a knowledge of the 'writing process', inquiry and research skills, through telecommunication technology. Techniques of word processing, page layout, publishing, and dissemination offer the Island schools an opportunity to create a language based, student-centered electronic network.

Objectives:
1. To establish publishing facilities in the individual schools.
2. To demonstrate student ability to develop, revise and analyze questions according to the levels of cognition in Bloom's taxonomy.
3. To initiate a joint newspaper between the junior high students and the Martha's Vineyard Times.
4. To facilitate special needs students' participation in a local history exchange via telecommunications with special needs students from Sturbridge.

Procedures:
Two MacIntosh computers were placed in the four junior high English classrooms. Teachers were then trained to use these computers and software. An electronic bulletin board was also set up. Students telecommunicated to junior high students in other Island schools and also published individual school newspapers. Students published an all-Island newspaper in the Martha's Vineyard Times while special needs students in grades 5, 6, and 7 telecommunicated a local history biographical exchange with students from Sturbridge.

Recommendations:
The program works best in the schools where there is someone who is familiar with the MacIntosh and Pagemaker software.
The strengths were all-Island communication, integration of technology into the language curriculum, the writing process as defined by Donald Graces and Nancy Atwood was integrated into the language curriculum, and the workshops were very valuable.
The weakness was Pagemaker was difficult for teachers to learn. Most students haven't learned it yet.

Materials available:
'Let's Talk' electronic bulletin board, publication in Martha's Vineyard Times newspaper, workshops on telecommunications.

Grant type:
FY88 Project Grant.

Contact:
Virginia Warn
West Tisbury School
Old County Road
West Tisbury, MA 02575
693-9799

Computer Applications and Telecommunications in the Curriculum
Westwood

Curiculum areas:
All.

Grade levels:
7 and 8.

Equipment:
CD-ROM player, 23 Apple IIe, MacIntosh, and IBM PC computers, modem, phone line.

Materials:
Telecommunications software, AppleWorks software, CD-ROM electronic encyclopedia.

Personnel:
Library media, social students, English, computer applications, and special needs personnel.

Description:
Research skills involving print, video, on-line databases, telecommunications, and CD-ROM were integrated into academic curricula to expand the search strategies of at-risk students. Interdisciplinary multimedia and integrated software units were developed to expand and improve at-risk students' language arts and research skills data analysis to function as a motivational tool.

We produced a videotape focusing on the Third World and documenting both student interaction and our team-teaching approach.

Objectives:
1. To document the use and effectiveness of integrated technology.
2. To use the technology to meet the needs of at-risk students both in the special needs resource room and learning centers as well as the regular classes.

Procedures:
The planning process involved staff from social studies, English, special needs, information science, computer applications, the Parent Network, School Improvement Council and administration. Equipment was purchased and staff met to develop and expand interdisciplinary curriculum integrating technology. Video scripts were written, and students were involved in video production. Schools in remote areas were identified for participation in telecommunication projects. At-risk and regular students received training in electronic information retrieval. Students used their knowledge of telecommunications in writing projects involving students from other schools.

Recommendations:
Educators can use the videotapes and printed materials we produced to generate ideas for similar projects in their own schools. In our project, at-risk students produced outstanding written work, and were motivated to research topics using key words and main ideas through a variety of formats.

Materials available:
1. An outline of all the projects.
2. A videotape documenting our use of computer applications.
3. A technology curriculum guide and bibliography.
4. A booklet, videotape and AppleWorks database and spreadsheet on the interactive multi-media unit, Feeding the Billions: A Journey through the Third World.

NOTE: Some of these materials involve a fee. Price information is available from the contact person listed below.

Grant type:
FY87 Mini grant.

Contact:
Roxanne Baxter Mendrinos
Edmund W. Thurston Junior High School
850 High Street
Westwood, MA 02052
(617) 326-7500 x50,51

Telecomputing in School
Williamstown

Curriculum areas:
Social studies, language arts, science, foreign language, computer literacy.

Grade levels:
K through 12.

Equipment:
Computer, modem, phone connection, printer.

Materials:
Communications software, subscriptions to on-line services, electronic bulletin boards.

Personnel:
Group leader.

Description:
Our planning group met twelve times, both with and without consultants. We explored a number of telecomputing activities in which we used our computers to communicate with other computers over telephone lines. These other computers included microcomputers in schools, minicomputers, and the giant mainframes of services such as Compuserve and Dow Jones. This background enabled us to develop two alternative plans for integrating telecomputing into our curriculum next year, depending on available funding.

Objectives:
1. To expand the opportunities for professional development and sharing.
2. To enhance the relationships among participating schools.
3. To expand the opportunities for students to share and exchange information with others.
4. To enable students to use on-line databases for research.
5. To enhance communication with the community.
6. To improve regional administrative communication.

Procedures:
At the group's initial meetings we shared information about our own resources and experiences. Later we alternated planning sessions and meetings with consultants. Other teachers participated when appropriate. Midway through this sequence we established some exploratory activities to try with elementary students.

Recommendations:
At least six months should be set aside for the planning process. Adequate resources are a must - not only hardware and software, but subscriptions to on-line services and bulletin boards. A 1200 baud modem is preferable to 300 baud. Also, it is important to plan and publicize meetings well in advance.

Materials available:
Telecomputing handbook.

Grant type:
FY87 Mini grant.

Contact:
Len Huber
Williamstown Elementary School
96 School Street
Williamstown, MA
(413) 458-5707

Computer Laboratory Project
Amherst/Pelham Regional School District

Curriculum areas:
All areas, especially English.

Grade levels:
7 through 9.

Equipment:
24 Epson computers, 4 printers.

Materials:
WordPerfect, miscellaneous software.

Personnel:
Teacher trainer, project coordinator and full time computer lab aide.

Description:
We have furnished a computer lab used primarily for the teaching of writing across disciplines. It is open to all classes. Our teachers have been trained to use WordPerfect, and they in turn are training students to use this software to their best advantage.

Objectives:
1. To provide teachers and students the opportunity to develop computer awareness and become proficient in the use of specific software applications as an integral part of the curriculum.
2. To evaluate computer applications in order to develop units that will incorporate these applications and meet the goals and objectives of established curriculum.
3. To develop confidence, self-reliance and critical thinking skills in students by taking maximum advantage of the computer as a means of expanding educational possibilities.

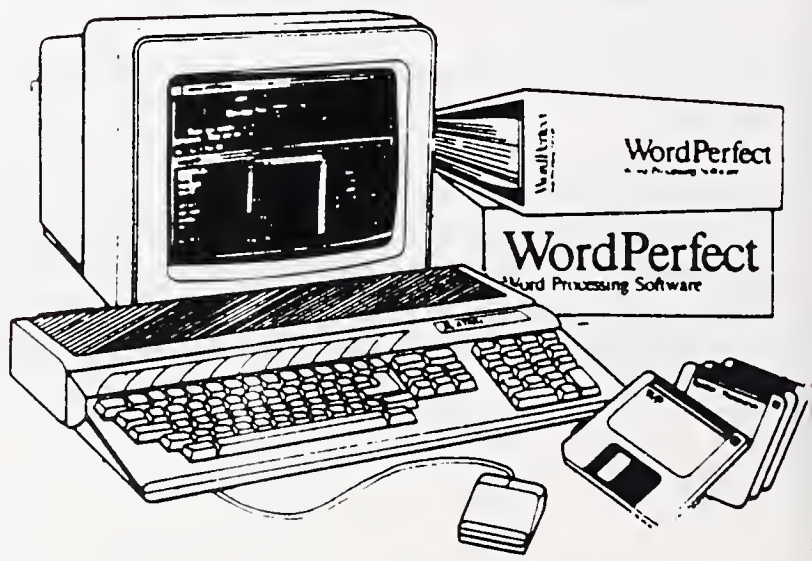
Procedures:
The first 10 days were devoted to teacher training. Computers were installed and an aide hired. Classes work in the lab every period of the day, primarily on writing activities. All seventh graders are also receiving keyboarding instruction.

Recommendations:
This project has been tremendously successful. Students are writing better and liking it better. Teachers are enthusiastic, trying new approaches and finding many benefits to this form of instruction. Other educators could benefit from learning about our teacher training model and by reviewing our WordPerfect manual.

Materials available:
A student manual on how to use WordPerfect is in production.

Grant type:
FY88 Project grant.

Contact:
Wendy Kohler
Amherst Regional Junior High School
170 Chestnut Street
Amherst, MA
(413) 549-3975



Planning for Computer Literacy
Hawlemont Regional School District

Curriculum areas:
Reading, writing, social studies, spelling, math.

Grade levels:
K through 6.

Equipment:
10 Apple IIe and IIc set-ups.

Materials:
Miscellaneous software.

Personnel:
A consultant, principal.

Description:
Hawlemont teachers are able to collaborate in the development of a school-wide plan for the integration of computers into the curriculum. Teachers will acquire skills in computer use, become familiar with computer software, design individual and K-6 implementation plans, and pilot those plans through the use of selected software. A consultant provided training, assistance in software selection, and on-site support during the implementation process.

Objectives:
1. To acquire skills in computer use.
2. To develop a K-6 computer implementation plan.
3. To integrate computers into the curriculum.

Procedures:
All teachers complete a pre-training survey of needs which is used by a computer consultant to customize training. The consultant and principal purchase appropriate computer software which is introduced to staff at the training workshops.

Recommendations:
Forming the Computer Committee of teachers, principal and consultant help promote information sharing and joint decision-making. It is important for teachers to have hands-on experience with the computers.

Grant type:
FY88 Mini grant.

Contact:
Gail Healy
Hawlemont Regional School
School Street
Charlemont, MA 01339
339-8317

Laserdisc Bootstrap
Marlborough

Curriculum areas:
Elementary science.

Grade levels:
K through 5.

Equipment:
7 Laserdisc players.

Materials:
Science laserdiscs.

Personnel:
Project director, 3 aides, 1 evaluator.

Description:
This project will employ the on-going 'Grandteacher Program' to introduce laserdisc technology to the classrooms, K-5. The Grandteacher will research the potentials of the new technology, bring the technology to individual classrooms by presenting interactive science lessons for the students, and training the teacher in operation of the laserdisc player. The Grandteacher, the microcomputer coordinator, and two high school science teachers will work as a team to develop interactive lessons appropriate for each of the levels, K-5. Special workshops for teachers will be developed to coordinate the technology with the new science curriculum. A broad dissemination program already in place will reach many central Massachusetts school districts. A free loan videotape presentation of the project will be made available statewide. A thorough professionally designed evaluation plan will include pre- and post-surveys of students, teachers and parents to measure the effects of the project.

Objectives:
1. To improve science education, K - 5, in Marlborough, Northborough, and Southborough school districts through the use of laserdisc technology.
2. To make learning science more fun for the students.
3. To provide more resources to K-5 teachers in the teaching of science.

Procedures:
The first task is to identify where laserdisc technology can help in the presentation and teaching objectives described in the new science curriculum. Six workshops will be developed, one for each grade level, to show teachers how the new technology will work into their lesson plans.

The Grandteacher will visit individual classrooms to present demonstration lessons and Merrimack Teacher Center to preview laserdiscs as well as drawing upon the experience of teachers already using the technology. Interactive science lessons will be created on compuer discs.

Recommendations:
Every educator must realize that they have a professional responsibility to familiarize themselves with laserdisc technology at 'Level One' (audio-visual use).
Weakness: High demand for products leads to backorders and delays.

Materials available:
We are working on a video.

Grant type:
FY88 Project grant

Contact:
Larry McGowan
Marlborough High School
Bolton Street
Marlborough, MA 01581
460-3560

Cooperating Library Telecommunications Network
Middleborough

Curriculum areas:
All.

Grade levels:
7 through 12.

Equipment:
Canon 920 Laser Fax Machine, Printer, Phone Lines.

Description:
This project establishe4s an electronic resource sharing network among six area junior and senior high schools and one college. Microform and journal articles available at the various libraries will be transferred via modem and document facsimile equipment to students throughout the network as they need them for research assignments.

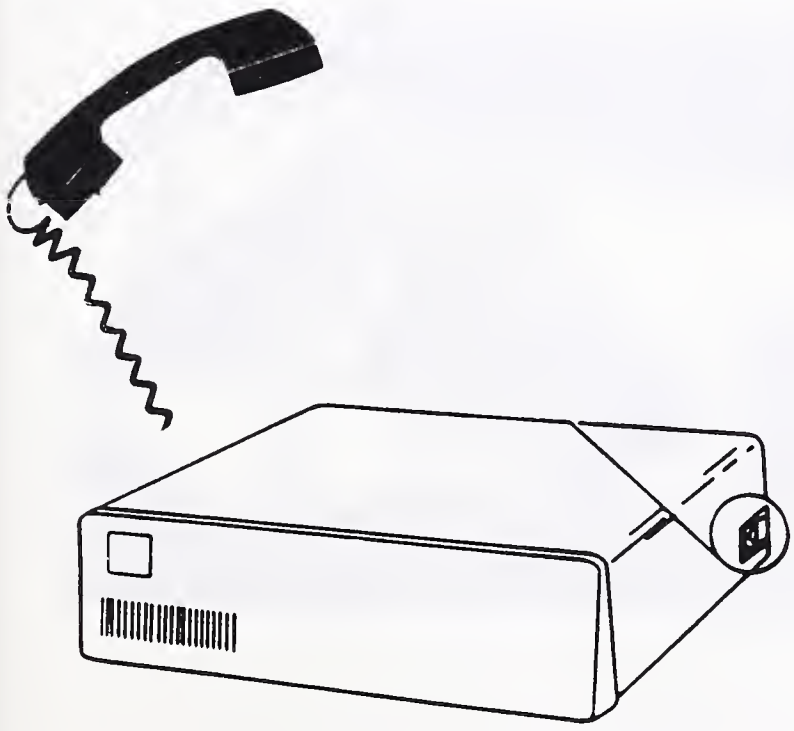
7 and 8 grade students use this electronic network for their annual Science Fair project and grade 11 students use it to do their primary source research in their U.S. History project.

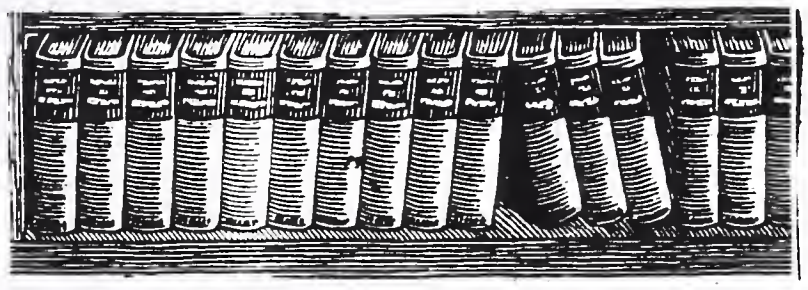
Objectives:
1. To improve timely access to periodical resources for science and social studies.
2. To increase and enhance research materials available to students and teachers by cooperative collection development within the network.
3. To provide more resource materials to grade 7 and 8 students during their Science Fair preparation.
4. To provide more primary resource materials to U.S. History students for their annual research report.

Procedures:
Students will determine their research topics and will identify appropriate journal articles through the Reader's Guide to Periodical Literature and other appropriate indexes. During orientation for Science Fair Projects library research, the student will learn how to use the union list of periodical holdings of networked libraries. Each student shall locate one appropriate journal article in the union list. Students who cannot find adequate journal resources in their own library holdings shall consult the union list for the location of at least one article from another library and will complete the interlibrary loan form to request it. Students needing further resources will request printouts of articles at other libraries on the union list from the library staff. At least five articles will be obtained for each group.

Grant type:
FY88 Project grant.

Contact:
Joseph McDonald, Director
Media & Computer Services
Middleborough Public Schools
71 East Grove Street
Middleborough, MA 02346
947-3110





Project L.I.V.E.

Minuteman Regional Vocational Technical School District

Curriculum areas:
Mathematics.

Grade levels:
9 through 12.

Equipment:
Laser videodisc presentation stations (2).

Materials:
Math oriented videodisc software, videodisc authoring software, support blank disks.

Personnel:
Clerical person, project consultant and evaluator, student trainer, psychologist.

Description:
This project uses interactive videodisc first in the 9 to 12 grade math curriculum and later in other related academic and vocational areas. The project is based on educational research which strongly indicates that the vocational students learn best from the visual presentation of materials.

Objectives:
1. To make learning attractive to students who have been frustrated by the traditional verbal orientation of public school programs and to provide alternative instruction with a focus on visual and practical applications.
2. To have the classroom teachers understand that students have alternate strengths in learning styles that must be addressed.

Procedures:
Students will be tested, using the Learning Styles Inventory, to identify those students who can best profit from an alternative to verbal and text orientated curriculum. Learning stations with appropriate integrated video hardware and software will be established and teachers will be trained in the use of hardware, software and concepts of tactile visual learning styles. Each student will begin their self-paced program at the point of need and the quiz system to measure students' progress against the control group will be used. From this, a dissemination report will be developed.

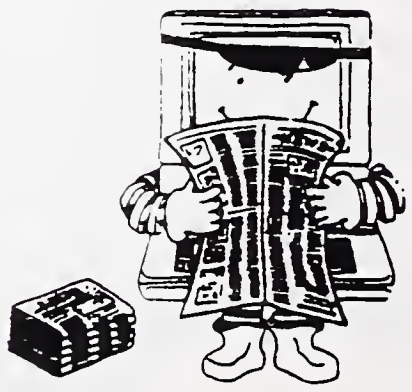
Recommendations:
Administrators and teachers must be educated as to the differences in learning styles of students. The concept of Right and Left Brain Learners is clearly researched and documented. One student can read a mechanics journal clearly, but not understand how to diagnose an engine problem. Another student can see and hear an engine running and immediately diagnose and repair.

Students who have been experiencing difficulties can be provided with more appropriate systems of teaching. Students and teachers can be more confortable with each other as these strengths are identified. Many students, who would have been previous 'failures' can now more fully realize their individual potential.

Materials available:
Guide for the use of interactive video work stations in mainstream mathematics classes. This will include: recommendations for hardware and software purchases and teacher classroom guide for their implementation.

Grant type:
FY88 Project grant.

Contact:
Gerald Less
Minuteman Regional Vocational Technical School
758 Marrett Road
Lexington, MA 02173



Project CERES

Norfolk County Agricultural School District

Curriculum areas:
All.

Grade levels:
9 through 12.

Equipment:
Apple IIGS computers, printer, modem, phone line.

Materials:
Software communication packages.

Personnel:
Teacher.

Description:
Project CERES provided ready access to an online information service (CompuServe) so that students would easily be able to do computer searches of encyclopedic and newspaper-based information sources.

Objectives:
1. To enable students to conduct computer searches of Grolier's Encyclopedia and U.S.A. Today.

Procedures:
The major activities of Project CERES were the purchase and installation of the hardware and software necessary for an easily usable on-line terminal.

Recommendations:
Projects similar to CERES are very simple to introduce into a school setting. A major consideration would be the availability of staff to conduct training and to serve user needs during operation. Projects similar to CERES may be especially appealing to school districts because it enables schools to access databases at other schools.

Materials available:
A flyer for student information.

Grant type:
FY87 Mini grant.

Contact:
Dr. Michael Barden
Norfolk County Agricultural High School
460 Main Street
Walpole, MA 02081
(617) 668-0268

Principles of Technology Collaborative
Northern Berkshire Vocational Regional School District and
North Adams Public Schools

Curriculum areas:
Technology education, vocational education, science, math.

Grade levels:
9 through 12.

Equipment:
Principles of Technology lab stations.

Materials:
Workbooks.

Personnel:
Teachers

Description:
The collaborative effort between Drury High School and McCann Technical School will enhance the science, math, and technical curricula by implementing a nationally developed program, 'Principles of Technology', in both schools. This project does not require computers or software, but focuses on providing technology through instruction in applied physics and math concepts to better prepare students for employment and participation in a changing technological society. One-time implementation costs will allow the acquisition of state-of-the-art laboratory equipment for both schools to provide work-bound students a relevant, integrated program of skills training and academic preparation.

Objectives:
1. To develop a unique, alternative, hands-on approach to learning sophisticated applied physics for the non-directed academic and/or vocational student.
2. To enhance the science, math, technology and vocational education curricula through an interdisciplinary approach to the technical principles and concepts of technology.
3. To improve the math, science, and technical problem-solving skills of students to better prepare them to meet the needs of business and industry.
4. To increase articulation between the comprehensive and vocational high schools as well as between departments within the schools.

Procedures:
The 'Principles of Technology' curriculum was implemented at Drury High School and McCann Technical School in the fall of 1987 for 50 of their non-directed academic and/or vocational students. Articulation between the comprehensive high school and the area technical school as well as between departments within each school improved through a variety of activities designed to integrate academic and occupational programs. Students apply scientific, mathematical and technical concepts to realistic, hands-on laboratory experiments in force, work, rate, resistance energy power and force transformers. Students will acquire the basics of math and science to augment technical skills training to better prepare them for successful employment in our modern technological society.

Recommendations:
At a statewide level, the incorporation of this academic component to a modern industrial technology program at Drury High School will be received with interest by comprehensive high schools struggling to update their programs and deal with declining enrollments in a cost effective method. Evaluation of the project will be ongoing. A project summary and recommendations will be completed at its conclusion. Copies of this summary will be made available to the North West Regional Education Center. Dissemination through the Division of Occupational Education, and the Principles of Technology Leadership Project as well as the Mass. Industrial Education Society and Mass. Vocational Association will be employed. It is hoped that the calibre of this project will warrant demonstration at the annual Professional Development Conference at Fitchburg State College in June, 1988.

Grant type:
FY88 Project grant.

Contact:
John Avery
McCann Technical School
Hodges Cross Road
North Adams, MA 01247
(413) 663-6160

Art Harrington
Drury High School
South Church Street
North Adams, MA 01247
(413) 664-4501

Computer Integrated Instruction and the Preschool Special Needs Student
North River Collaborative

Curriculum areas:
Speech, language, motor and early cognitive skills.

Grade levels:
Preschool special needs.

Equipment:
3 Apple IIe's, monitors and keyboards, Echo Speech synthesizers, DecTalk Speech synthesizer, Touch Windows, Imagewriter II.

Materials:
Various software packages.

Personnel:
Occupational therapist, computer specialist, project coordinators: 2 speech therapists, educational specialist.

Description:
In an effort to enhance the speech-language and cognitive development skills as well as fostering the development of skills necessary for a special needs student to become an active communicator and learner, staff were trained to become computer literate and knowledgeable of adaptive equipment, software and integrated instruction. Parents became aware of computer technology, adaptive equipment and software for their special needs preschool child as a teaching/learning tool.

Objectives:
1. To demonstrate staff competency using various adaptive devices, choosing appropriate software and integrating computer technology into the curriculum, meeting the individual needs of students.
2. To demonstrate special needs preschool students' understanding of pragmatic and developmental speech, language and cognitive skills through computer integrated instruction.
3. To demonstrate special needs preschool students' active environmental control and independence using a computer based educational-communication system and adaptive devices.
4. To demonstrate parent awareness of available computer-technology and adaptive equipment for the special needs student.
5. To integrate computer technology and adaptive equipment into the early childhood education.

Procedures:
Model programs currently integrating computer technology into the curriculum were surveyed and visited. An ongoing consultation with the Communication Enhancement Clinic at Children's Hospital was established. Staff were surveyed regarding computer literacy skills, knowledge of adaptive equipment and software for the development of inservice presentations. Training specialists were hired and four inservice training presentations for early childhood staff were arranged. This was followed with a technology awareness workshop for parents. Program observations were encouraged and arranged. The final procedure involved the development and presentation of a project awareness open house for liaison personnel to become aware of computer technology and adaptive equipment and how it is being integrated into the special needs preschool population.

Recommendations:
Preschool special needs teachers, occupational therapists, physical therapists and speech clinicians could best use this program to enhance the speech, language, cognitive, motor and perceptual development of verbal, nonverbal, developmentally, physically disabled and visually impaired preschool students. The integration of technology into the curriculum has been effective in: fostering the development of skills necessary to become an active communicator and learner, stimulating positive affective gains regarding self-awareness and increasing independence and control within their environment.

Materials available:
Operation Guide for Computer and Adaptive Devices, Users Guide modified for using software and adaptive devices with curriculum suggestions and applications. In the process of establishing a software library.

Grant type:
FY88 Project grant.

Contact:
Jacqueline Egan
Judith Cingolani
Early Childhood Center
354 Union Street
Rockland, MA
878-0684

Interactive Telecommunications
South Berkshire Educational Collaborative

Curriculum areas:
All.

Grade levels:
10 through 12.

Personnel:
Collaborative director, 5 consultants.

Description:
Interactive telecommunications systems can be used to maintain and expand secondary level curriculum in spite of financial constraints and declining enrollments. This project assesses the feasibility of using this technology throughout four school districts.

Objectives:
1. To review the major interactive technologies associated with distance learning.
2. To assess the feasibility of an interactive system for the school districts in the South Berkshire Educational Collaborative.
3. To contract with a technical consultant to develop an implementation plan and budget.

Procedures:
Research of successful interactive projects was conducted and information was disseminated throughout the districts. Once the school's needs were clarified, support of interactive telecommunications as a potential solution was generated. The collaborative then hosted a seminar with representatives of successful interactive telecommunications projects present. The feasibility of an interactive telecommunications project was assessed and an implementation plan was developed.

Recommendations:
Once our project is fully implemented, it can be used as a model for small and rural Massachusetts schools facing declining enrollments and continued financial pressures.

Materials available:
Feasibility study and implementation plan.

Grant type:
FY87 Mini grant.

Contact:
Richard Labrie
South Berkshire Educational Collaborative
Main Street
P.O. Box 631
Stockbridge, MA 01262
(413) 298-3614

Interactive Television
South Berkshire Educational Collaborative

Curriculum areas:
Low enrollment academic courses

Grade levels:
9 through 12

Equipment:
Telecommunications Equipment

Materials:
Engineering study

Personnel:
Engineering Consultant, Staff Training Consultant

Description:
The Interactive Television project is being implemented to provide students from 4 rural and small school districts access to curriculum which has been historically low in enrollment. Also, develop and offer new curriculum on a cooperative basis for cost effectiveness. The project utilizes a combination of cable television and microwave for simultaneous audio and video transmissions.

Objectives:
1. Establish an I.A. classroom at each of the three high schools - currently in process.
2. Identify course enrollment and appropriate courses for the I.A. project - completed.
3. Implement teacher in-service program for volunteer teachers - currently in process.
4. Teach several pilot courses utilizing system - postponed to Phase III of project.

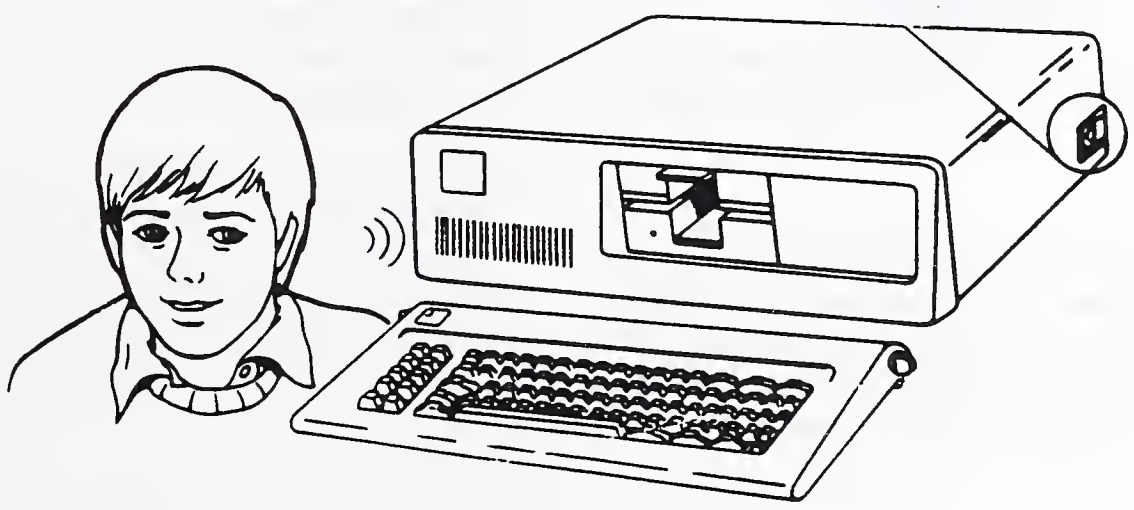
Procedures:
1. Definition of problem - how to maintain low enrollment courses.
2. R & D re: interactive T.V. as solution to problem.
3. Site visit to New York projects.
4. Engineering feasibility study.
5. Identify volunteer teachers and identify and modify curriculum.
6. Install classroom studio equipment.
7. Modify cable system for interactive capability.
8. Prepare specs and secure funding for transmission (microwave) costs.

Recommendation:
This system has proven to be effective in low enrollment academic courses, especially in rural settings where educational resources are scarce.

Materials available:
Engineering feasibility report
Videotape presentation

Grant type:
Project grant

Contact:
Richard G. Labrie
South Berkshire Educational Collaborative
Main Street
Stockbridge, MA 01262
(413)298-3614



Database Technology as a Curriculum Tool
South Coast Educational Collaborative

Curriculum areas:
All.

Grade levels:
1 through 12.

Equipment:
Apple IIe computer.

Materials:
AppleWorks, Bank Street Beginner's Filer, and Bank Street School Filer software.

Personnel:
Classroom teachers.

Description:
Twenty-four teachers participated in this project. The teachers, who represent all grade levels, were selected from the eight districts that are members of the Computer Technology Center. The teachers met weekly, initially receiving intensive training in several different database programs. They subsequently divided into four groups to develop curriculum-based projects using database tools.

Projects on the following topics have been developed: classroom demographics ("Who Am I"), dinosaurs, great leaders, slavery, and the Olympics. In the project's later phase teachers also received continued training, which exposed them to CD-ROM and on-line database access.

Objectives:
1. To train teachers in the use of selected database programs.
2. To develop curriculum projects using appropriate database programs.
3. To pilot these curriculum projects in selected classrooms.
4. To revise the curriculum materials and make them available to other schools following the pilot implementation.

Procedures:
The first step was to develop a process to recruit and select qualified teachers. Twenty-four teachers from the Computer Technology Center's eight member districts were selected with input from the member districts' superintendents and the Center's faculty advisory committee.

Once selected, the group of teachers met weekly for ten weeks to learn database use and become familiar with several different programs. Teachers quickly achieved fluency with the selected database programs. Once they showed competence in database use, teachers were divided into four groups to develop classroom projects in specific curriculum areas.

Recommendations:
In implementing a program like this, it is important to allow participants to develop their own projects. This makes it possible for teachers to integrate the computer tools with the existing curriculum. Also, this approach fosters a greater investment in the success of the project.

It is important to allow time for the discussion and false starts that will inevitably occur. Participants should be allowed to make mistakes in initially structuring their projects, so they can build sounder models after the first trial run.

Managing the program as a cross-district program has had a very beneficial side effect. Teachers from different districts have developed relationships that will lead to continued cooperation and sharing long after this program is over.

Materials available:
A book that details the projects, with lesson plans and handouts.

Grant type:
FY87 Project grant.

Contact:
Martin Huntley
Compuer Technology Center
c/o North Middle School
Whetstone Hill Road
Somerset, MA 02726
(617) 672-2060

Distance Learning Project
The Education Collaborative

Curriculum areas:
All.

Grade levels:
10 through 12.

Equipment:
Cameras, monitors, microphones, modulation equipment.

Personnel:
Teachers, administrators, staff from cable television company.

Description:
The project involved setting up an interactive cable system between Needham and Wayland in order to share instructional expertise between the two towns.

Objectives:
1. To cooperatively design a cable conferencing studio.

Procedures:
First, the cable television company was contracted in order to determine what should be purchased. Then, the studio in Wayland was built and modulation/demodulation equipment was installed. In the meantime, teams of teachers met to develop an interesting and useful seminar. Finally, classes were given. Students were involved in doing some background course work and meeting with the teachers prior to filming.

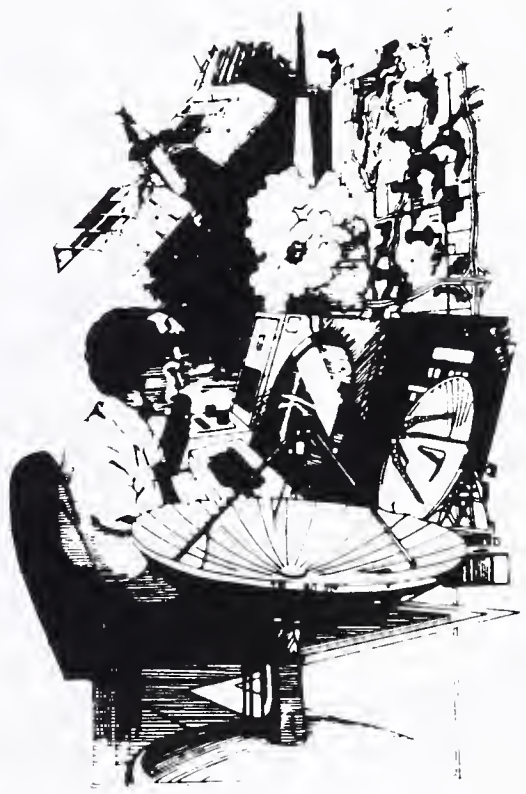
Recommendations:
This technology can be useful in many situations. It can help low-incidence courses become more available to students in many towns. At some point, this technology may aid students who are unable to attend classes. By using this technology, students throughout a state would be able to receive equal education even if their school district cannot provide certain courses.

Educators can prepare for the advent of this technology by being open to teaching a larger audience in remote sites. The benefits of this project were the wonderful experiences teachers had working together. Districts should bear in mind, however, that a project like this requires sophisticated equipment, significant funding and implementation time.

Materials available:
Videotape showing the use of this technology.

Grant type:
FY87 Project grant.

Contact:
Gail Ross-McBride
The Education Cooperative (TEC)
50 Kingsbury Street
Wellesley, MA 02181
(617) 237-3028



Chapter 188 Educational Technology Grants Program
Dissemination Project
Oxford
Coordinated by French River Education Center

Description:
Several agencies collaborated to disseminate information describing the grants recipients' projects. These agencies were: French River Education Center, the Bureau of Educational Technologies, Massachusetts Department of Education, Massachusetts Corporation for Educational Telecommunications and Boston University.

Major dissemination activities included an Empowerment Conference, to which all grants recipients were invited. Information presented included 'Tips on Teleconferencing'; 'Adults Teaching Adults'; 'Industry's New Management Tools - Applied to Education'; 'Changing Education: How to Get Where You Want to Go'; 'Getting Your Message Out: Priming the Publicity Pump'; 'Massachusetts Department of Education Funding Opportunities'; and 'Writing for Publication'.

A teleconference featuring five Chapter 188 Educational Technology Grants recipients, entitled 'Technology in the Massachusetts Classroom', was a statewide information dissemination project. Presentors' projects were up-linked from Boston University and down-linked to six sites across Massachusetts.

A booklet, 'Technology in the Massachusetts Classroom,' was published and made available to all school districts. Each project funded by the Chapter 188, Educational Technology Grants Program was described.

Objectives:
1. To disseminate information to educators throughout the Commonwealth regarding grant recipients' projects.
2. To provide an opportunity for several grant recipients to share their projects with colleagues throughout the state via a teleconference.
3. To publish and distribute a booklet describing each of the Chapter 188 Educational Technology Grant programs.

Materials available:
Videotape of teleconference, 'Technology in the Massachusetts Classroom', is available from the Bureau of Educational Technologies, 75 Acton Street, Arlington, MA 02174, and an information dissemination booklet, 'Technology in the Massachusetts Classroom' is available from the Bureau of Educational Technologies and the Massachusetts State Department of Education's six Regional Education Centers.

Grant type:
FY88 Project grant.

Contact:
Dr. Francis G. Driscoll
Superintendent
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5 Sigourney Street
Oxford, MA 01540
(617)987-0246